

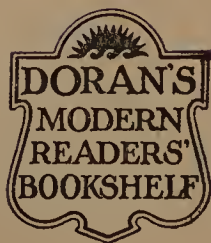
Warygroue

EX LIBRIS



THE POETRY
OF ARCHITECTURE

Frank Rutter



DORAN'S MODERN
READERS' BOOKSHELF

ST. FRANCIS OF ASSISI

Gilbert K. Chesterton

THE STORY OF THE RENAISSANCE

Sidney Dark

VICTORIAN POETRY

John Drinkwater

THE POETRY OF ARCHITECTURE

Frank Rutter

ATOMS AND ELECTRONS

J. W. N. Sullivan

EVERYDAY BIOLOGY

J. Arthur Thomson

Other Volumes in Preparation

THE POETRY OF ARCHITECTURE

BY

FRANK RUTTER

AUTHOR OF "SOME CONTEMPORARY ARTISTS," "THE
WALLACE COLLECTION," "RICHARD WILSON
AND FARINGTON," ETC.



NEW

YORK

GEORGE H. DORAN COMPANY

COPYRIGHT, 1924,
BY GEORGE H. DORAN COMPANY

THE POETRY OF ARCHITECTURE
— B —
PRINTED IN THE UNITED STATES OF AMERICA

GENERAL INTRODUCTION

Of all human ambitions an open mind eagerly expectant of new discoveries and ready to remold convictions in the light of added knowledge and dispelled ignorances and misapprehensions, is the noblest, the rarest and the most difficult to achieve.

JAMES HARVEY ROBINSON, in
"The Humanizing of Knowledge."

It is the purpose of DORAN'S MODERN READERS' BOOKSHELF to bring together in brief, stimulating form a group of books that will be fresh appraisals of many things that interest modern men and women. Much of History, Literature, Biography and Science is of intense fascination for readers to-day and is lost to them by reason of being surrounded by a forbidding and meticulous scholarship.

These books are designed to be simple, short, authoritative, and such as would arouse the interest of intelligent readers. As nearly as possible they will be intended, in Professor Robin-

son's words quoted above, "to remold convictions in the light of added knowledge."

This "adding of knowledge" and a widespread eagerness for it are two of the chief characteristics of our time. Never before, probably, has there been so great a desire to know, or so many exciting discoveries of truth of one sort or another. Knowledge and the quest for it has now about it the glamour of an adventure. To the quickening of this spirit in our day DORAN'S MODERN READERS' BOOKSHELF hopes to contribute.

In addition to the volumes announced here others are in preparation for early publication. The Editors will welcome suggestions for the BOOKSHELF and will be glad to consider any manuscripts suitable for inclusion.

THE EDITORS.

CONTENTS

	PAGE
CHAPTER I	
INTRODUCTORY	11
CHAPTER II	
THE AGE OF FEAR	27
CHAPTER III	
THE AGE OF GRACE	65
CHAPTER IV	
THE AGE OF STRENGTH	87
CHAPTER V	
THE AGE OF PIETY	111
CHAPTER VI	
THE AGE OF ASPIRATION	151
CHAPTER VII	
THE AGE OF ELEGANCE	187
CHAPTER VIII	
THE AGE OF MEMORY	209
A GLOSSARY OF TECHNICAL TERMS	223
INDEX	233

THE POETRY
OF ARCHITECTURE

“AN OUTWARD AND VISIBLE SIGN OF AN
INWARD AND SPIRITUAL GRACE.”

—*Church Catechism.*

THE POETRY OF ARCHITECTURE

Chapter I

Introductory

ALL the joys which life has to offer us may be divided into two classes: those vouchsafed by Providence and those created by the ingenuity of Man. Among the latter none is more potent, more subtle or more far-reaching in its influence than the feeling of awe, veneration or delight which arises from the contemplation of some noble edifice that has been fashioned by man in the present or in the past.

However heedless or unobservant we may be of what is around us, we are none the less insensibly affected by the aspect of streets through which we pass. To the city-dweller architecture is a matter of supreme importance, because he cannot escape from its influence for good or evil. If it be his lot to pass his life

trudging through the sordid streets of an industrial city, like Wakefield with its monotonous rows of red-brick, jerry-built, box-like dwellings, then however happy his natural disposition may be, the dead weight of his surroundings will in the end wear out the citizen's gaiety and make him weary and depressed. For millions of people living in the industrial areas of Great Britain the "housing problem" does not exist, because they are *not* housed; they are merely "boxed-up" like so many rabbits. People who are brought up under the conditions of a tame rabbit cannot themselves be blamed if they have also the mind of a rabbit.

On the other hand, let us suppose our imaginary householder to have the happiness to dwell in a city where beautiful buildings abound, let us place him, for example, in the city of Cambridge; then we may be sure that, whatever his private troubles may be, each time he goes out they will be lightened, for he cannot stroll through the "Backs" or walk down King's Parade without experiencing, consciously or unconsciously, a feeling of exhilaration. For the

uplifting of hearts one beautiful building is worth a score of well-meaning but ill-designed institutes.

An art that so profoundly affects our daily life is, or should be, the concern of everybody; it ought not to be considered a matter only for students and professional architects, for there is nobody to whom it is closer than the proverbial man-in-the-street.

What then is Architecture, and how does it differ from Building? Prof. W. R. Lethaby has defined architecture as "the art of building and of disposing buildings"; but though nobody can say his definition is incorrect, it is not very helpful. One might as well define poetry as "the art of spelling and of constructing sentences." In either definition the essence of the thing escapes us.

There is more enlightenment in a paradoxical definition which at first reads like an absurdity: "Architecture is good building, and Building is bad building." Few people will accept this as satisfactory, and the trouble is that while we cannot dissociate architecture from building, we do want to dissociate much build-

ing from architecture. The matter of supreme interest to the greatest number of people is, not the *process* of building, but the results obtained by building. People who consider architecture a "dull subject" are usually those who have been led to believe that it is exclusively concerned with "plans" and details of construction. It may be so, viewed from the inside of an architect's office; but there is another side to architecture of far greater importance to the general public, and it is this side which is the object of the present inquiry.

For the purpose of this book Architecture may be defined as an *effect* of which building is the cause. Highly qualified experts have written learnedly and voluminously on the causes of architecture; the history of building has been told again and again with ever fresh erudition and with a constantly increasing multitude of detail. Indeed, so numerous have the details become that the reader, preoccupied with the identification and differentiation of the decorated parts, is in danger of losing sight of the whole, and the student who sets out to gain a little knowledge about architecture finds

himself only on the road to become an authority upon ornament.

As little as possible will be said here about ornament, which is often nothing more than an absurd survival of what once had a function, like the buttons on the back of a tail-coat which is no longer girded with a sword-belt. No pretension will be made here to trace the history of architecture beyond the briefest indication of how it arose from man's need and was developed to perpetuate his glory. Our main concern is not with causes but with effects, not to discover how the spires were built, but to ascertain, if we can, what they meant to the builders and what they mean to us. The science of building is a fascinating subject which may well occupy the attention of students, but the poetry of architecture is another matter; and our immediate object is not to investigate the construction of buildings, but to ponder on the pleasure to be derived from their contemplation.

To analyse a pleasure is an ungracious task, and its advantageousness is often questionable. From pulling it to pieces we may possibly de-

rive a better understanding of the working of a musical-box; but does the proceeding help us to a finer appreciation of the tune?

Many attempts have been made to pull architecture to pieces so that we might obtain a better appreciation of its beauties, and no writer ever approached this task with nobler ideals, more enthusiasm and with greater knowledge and experience than John Ruskin in "The Seven Lamps of Architecture." In its general scheme this is the grandest book on architecture ever yet planned. Ruskin's aim was to show that all great architecture, whatever its period or style, is illumined by certain definite moral principles. Thus in every noble work of building there shines through the Lamp of Sacrifice. No work of art can contain every conceivable factor of beauty, for every art-work is fashioned by a process of selection, and to select means that you must sacrifice some qualities in order that you may emphasise and give prominence to others. Again, the great building must be lit by the Lamp of Power, or it will not endure the stress of centuries; it must be fused in the Lamp of Obedience to natural

laws, or its parts will disintegrate and the whole will fall to pieces; it must glow with the Lamp of Truth, for there is no virtue in shams, and stucco which pretends that brick is stone will be annihilated in the ordeal of Time; on its face must be reflected the Lamp of Beauty—or, as I should prefer to say, of Significance—for without this the building can have no character and no meaning.

Few who have read this wonderful book will be prepared to deny that Ruskin has made good his case; but, unfortunately, in labouring his points he brings forward such a volume of evidence, that his minute and multitudinous illustrations tend to smother the “lamps” they were intended to feed. It becomes difficult to see the wood for the trees, and the reader is gradually led away from the contemplation of the whole—which is architecture—to a close examination of parts which are only architectural ornament. The explanation is that when it came to writing the book, Ruskin, in his passion for truth, neglected all his other lamps in order to ram home at every possible opportunity his pet contention that all beautiful design is

founded on natural form. That the writer was himself conscious of his falling away from his original intentions is clearly shown in the following note inserted in a late edition of his work: "There is too much stress laid throughout this volume on probity in picturesque treatment, and not enough on probity in material construction."

Nevertheless, whatever its imperfections may be, "The Seven Lamps of Architecture" remains one of the most readable books yet written on this subject, and one of the very few in which a serious endeavour is made to explain not only in what the beauty of buildings consists, but also the reason and meaning of that beauty.

Is there a meaning in Beauty? Surely, though often it is terribly difficult to define. One autumn afternoon I crossed the bridge at Kingston intending to stroll a little way along the banks of the Thames and then return, but the mildness of the weather led me on till I reached a point when it seemed easier to go on than to turn back. So, as the day declined, I skirted the wall of the palace, and, bearing to the right, found myself in front of the entrance

to Hampton Court just as the sun was setting. The whole façade was flushed to rosiness by its rays, and I stood spellbound by its beauty and its glory. What did I think about? Not of Wolsey, or Henry the Eighth, or of any of the historical personages with whom the palace is associated. To tell the truth I did not think at all. In these rare moments of perfect happiness—which only **art or** nature can give, which reach their highest point of intensity perhaps when art and nature work together in unison—we do not think; we *feel*. What we feel above all is that it is good to be alive; and these precious moments give us a standard by which we can test Life. The memory of them abides, telling us what life might be, reminding us of what it holds for those who seek.

To those who ask, What do you mean by the *poetry* of architecture? few better answers could be given than—Hampton Court. For though the poignancy of its effect may vary with the illumination of the hour, it is the building itself that calls the tune; sunshine or moonlight only change the orchestration. By any light that turreted gateway fascinates us

by its simplicity of structure and dignified design. Materially it satisfies us by the geometrical symmetry of its proportions; symbolically it contents us as the model of what a gatehouse should be, strong enough to deter the evilly-disposed marauder, gently hospitable in its aspect to the visitor of good intent. We may analyse its structure, measure it brick by brick, work out its ground-plan, and draw its elevation to scale; and still we shall not penetrate to the secret of its magic. Science can tell us how and of what material it is built; but its romance is something we must each feel for ourselves. There are thousands who feel its beauty without any consideration of its date, and it is only a sentimental, not an æsthetic, interest which is stirred up by the reflection that ten or twelve generations have also looked on what we now see. Nevertheless the date of a building does have a distinct bearing on the effect, as well as the cause of a building. All true architecture reflects the spirit of its time, and consciously or unconsciously the builders express the thought dominant in the mind that directs them. Hampton Court belongs to the transi-

tional age of the Tudors, and it is the perfect expression of a period when the rude ideal of a feudal fortress was beginning to give way to the gentler concept of a peaceful home. Therein lies part of the glamour of Hampton Court: it is the architectural embodiment of "Peace with Honour."

"Building touched with Emotion" is another definition of architecture which will appeal to many minds, and it is true to this extent that unless a building does convey or evoke some kind of emotion it cannot be considered seriously as a work of art. If a building awakes nothing more than admiration for the skill displayed in its construction and ornamentation, then it is more properly to be regarded as an example of craftsmanship than as a monument of art.

On the other hand, we shall soon fall into error if we allow ourselves to suppose that even those buildings which rouse our feelings were consciously erected to express a particular emotion. The great artists of olden time were rarely self-conscious; painters, sculptors and builders were intent on the immediate work

they had in hand, their best energies were concentrated on doing that work as well as they possibly could, and it was only unconsciously that as they worked some expression of their inner feelings crept into their craftsmanship and transfigured it so that it became art. One great difference between painting and architecture is that whereas a picture, usually, is the work of one man, a building is a co-operative work on which many minds and many pairs of hands have been engaged. Thus while a great picture reveals to us the character or mood of one man, its painter, a great work of architecture expresses not only the mind of the original designer but also betrays something of the minds of all that group of men associated with the work. In this respect architecture is unique, for whereas every other fine art is individual, architecture is social; and therefore the great buildings of the past are the best possible index to the temper of the times in which they were constructed.

All noble works of art are sacraments. They are outward and visible signs of an inward and spiritual grace; and the grace is most abundant

when its expression is unconscious. The conscious purpose of the sculptors of Trajan's Column at Rome was to commemorate the emperor's exploits in the Dacian wars; but subconsciously they expressed the outlook of the Romans of their time. Historical monuments are interesting to us to-day because in addition to recording important events of antiquity, they also reveal the psychology of past generations. The history of civilisation^z is the story of the development of mankind's mind and soul, and though countless generations have experienced the same emotions, yet at various stages of the world's progress one emotion has been dominating, and that emotion usually finds predominating expression in the arts of the period. Just as from one point of view—that adopted by Ruskin in his "Seven Lamps"—it may be argued that all good architecture is similar in its expression of great moral principles, so from another standpoint it may be contended that all architecture is different in so far as it expresses varying emotions.

In attempting a classification of architecture on the lines of its emotional content, it must

be borne in mind that there is no art—except perhaps the allied art of furniture—in which there has been more constant repetition than in architecture. In French furniture there are three distinct styles known as “Louis Quatorze,” “Louis Quinze” and “Louis Seize” which take their name from the king during whose reign the style reached its maturity; but everybody knows that the style alone is no indication of the date of a piece because not only were the Louis XIV and Louis XV styles, for example, repeated during the reigns of their immediate successors; they have been copied and imitated by cabinet-makers ever since their invention unto the present day.

Similarly with buildings, there are standard edifices erected during various periods of the world's history which are prototypes of their kind and seem to stand for certain emotions, which were uppermost in men's minds at the time of their construction and progress; but these buildings have often been extensively copied in later times when the minds of men have been otherwise occupied, so that these imitations no longer express the true spirit of

their day. Architecture, like furniture, is full of "fakes," and the style of Hampton Court adapted to the requirements of a shopfront in Oxford Street is no longer an expression of the guarded-homeliness of the original, any more than a Louis XV chair made in Wardour Street to-day is a true reflex of the bombastic pomp of the Court of Versailles. These adaptations and imitations may be pleasanter to look at than many things which are less conscious plagiarisms, but they have no real significance; at their best they are only graceful expressions of happy memories.

Further it must be remembered that emotions repeat themselves—as history does—and the deliberate imitations of past models must not be confused with the resemblances, occurring between buildings of various ages, which are genuine expressions of the same idea. To take an obvious example, nobody will imagine that the Eddystone lighthouse is an imitation of the Pharos of Ravenna; if there are points of resemblance between them it is because both were erected for the same purpose and have the same leading motive.

The classification of architecture put forward in the following pages does not pretend to be exact; to preserve some semblance of chronological sequence it is perforce both loose and summary; but it is hoped that it may start a train of thought which may be helpful and suggestive to the sympathetic reader, who will understand that the age of Fear did not end with the fall of the Egyptian Empire, and that the idea of Strength is likely to survive the monuments of Rome and the achievements of the mediæval fortress-builders.

Chapter II

The Age of Fear

ARCHITECTURE arose from man's need. Of no other art can this be said in quite the same sense. Man felt a need to express his joy in song and dance; he felt a need to explain himself by those hieroglyphics which, following different paths, ultimately developed into Painting and Literature; but these needs cannot be compared with his vital necessity to find a shelter for himself and his family.

Shelter—that was the primary function of architecture, and on wet days the custodians of museums and picture-galleries are still reminded of this ancient fact. With the actuality of shelter goes the idea of Safety, and this also obtains in our own times. All the scientific knowledge of the twentieth century cannot persuade us that we should be as safe in the centre of a moor during a violent thunderstorm as we

shall be in that tumbledown cottage towards which we vigorously direct our hastening steps. Face to face with the elements we are all primitive men and share their hopes and fears; we may no longer make a deity of our hearthside, but we all feel there is divine protection in a roof.

No countryman, who having been for a long walk on a winter's afternoon is cheered on his homeward journey by the sight of his dwelling with its lighted windows, would like to be told that he is afraid of the dark; yet, did he but know it, his feeling of satisfaction is but a survival of the thankfulness of his prehistoric ancestor on reaching home in daylight and so escaping the perils of the night. And the emotions called up in our pedestrian of to-day at the sight of his home are akin to those which the savage must have felt when he recognised his hut or his wigwam. In either instance, ancient or modern, these emotions are evoked by architecture, by the effect of a building on the mind of man. We cannot limit the poetic feeling inspired by architecture to any one class of building, and to-day there is often far more

poetry in a humble cottage than in a pretentious mansion erected at vast expense.

When man first crawled from his cave and his pit to establish himself for ever on the surface of the earth, his first concern was to make himself as safe as he could. Necessity is the mother of invention and fear is the father of architecture. In the beginning he constructed his rudimentary fortress of whatever material nature provided close to his hand. In a rocky country he soon learnt to use stone; in the forest he built his hut chiefly of wood; and where neither stone nor wood was obtainable, he walled himself round with mud. But all these primitive dwellings, however they may vary in material, are alike in shape; they are all round. The same form meets our eyes whether we turn our gaze on the bee-hive hut of the ancient Briton or on the snow-house of the Esquimaux. The first great technical advance in building was made when man learnt to square the circle.

In Egypt, where traces of the earliest civilisation have been found, it has been conjectured that the first dwellings were round huts of river-mud covered by palm-branches or a cone

of reeds. It was in this land in all probability that rectangular architecture had its origin, and Professor Lethaby has formulated the interesting hypothesis that the square was discovered in weaving and that square rooms were first built for square mats. If this hypothesis be accepted—and no better has yet been advanced—it follows that all square dwellings involuntarily pay tribute to the power of the warp and the woof. Another advance in building, which almost certainly originated in Egypt also, was made when lumps of clay were fashioned into bricks. We must not imagine that the ancient bricks were like modern bricks; originally bricks were not burnt, they were only dry mud, and these dry oblongs were embedded in wet mud to form the wall.

All this has to do with the prose of architecture, but it was in Egypt also, so far as we know, that buildings were first erected not only for use but for effect. Here the history of architecture properly begins. It begins with the First Dynasty, rather more than five thousand years ago. From this remote period there still survive sullen monuments of royal gran-

deur. These are the tombs of the early kings known locally as "Mastabas." The modern Egyptians do not appear to be a poetic race, and these solid masses of sun-dried brick, oblong rectangles with side-walls sloping upward and inward, reminded them of nothing better than "shop-counters," hence their name.

Excavators have discovered that many of these mastabas are lined with planks, and it would seem that a wooden chamber was first constructed to hold the body, and this chamber then protected by a thick casing of brickwork. The shape of these sepulchral monuments is dictated by their function and their material—they are, in fact, no more than colossal coffins; but they *are* colossal, and in their size they betray that they have been built not for use only, but for effect.

In almost all countries, it has been well said by a modern architect (P. L. Waterhouse), "the chief structures are the outcome of the nation's religious beliefs." This was notably the case in Egypt, the significance of whose architecture can hardly be grasped without reference to her religion. Why did Egyptian kings of

all dynasties want tombs like fortresses? Why did they take such pains to make a mystery and a secret of the burial chamber? They were afraid, and they were afraid because of their religion.

It was a tenet of their faith that material form was necessary to perpetuate existence. The Egyptians believed that, if you were good, you were rewarded after death by spending three thousand years in the company of the god Osiris, but at the end of this period your soul returned to earth, re-entered your former body and again began a terrestrial existence. Therefore it became a matter of truly vital importance that on its return the soul should find its former body intact. The destruction of the body meant the destruction of all hope of a second life on earth. Hence arose the practice of embalming to preserve the body, and also, for its protection, the fortress-like tombs which in the event have outlasted the required period of three thousand years.

The form of a building is the result partly of the purpose for which it is to be used, and partly of the material employed in its construc-

tion. The ancient Egyptians became skilled craftsmen in all available materials: they learnt how to joint beams together into framing so that wooden structures might hold together; they learnt how to put clay bricks together so that, by aggregation, a wall might become continuous; they learnt how to shape blocks of stone and to keep one above the other, either by balancing, by cementing, or by riveting them together with metal cramps. In short, they mastered all the elements of building.

What the Egyptian king desired for his funeral chamber was what primitive man desired for his rudimentary home—Security. For this purpose stone was the best material, as being more enduring than wood or clay. But he wanted it not only to be strong, but to *look* strong, to be so terrifying in its aspect that it would scare away the marauder. And as a deterrent to the would-be robber he could at first think of nothing better than Bigness. From this desire for the utmost possible durability and for the most imposing size was born the Pyramid, the perfect solution of the problem set to the builder.

The Pyramids are the earliest great architectural monuments known to us. The Great Pyramid at Ghizeh, near Cairo, associated with the name of Cheops, has been described as "the greatest and most accurate structure ever built." Its enormous size can be gathered when it is stated that its base—over thirteen acres in extent—is about twice the area of St. Peter's at Rome; its point is twenty feet higher than that famous dome. Each of its four sides is an almost perfect equilateral triangle—the bases, according to Professor Petrie's measurements, only vary from 755 feet 7·7 inches to 755 feet 9·4 inches. The apex at which the four sides meet is 481 feet high above the level of the platform. In aspect it is more like a mountain of stone than a building. The material of which it is constructed is chiefly limestone on a solid bed of rock, but this limestone was originally faced with a casing of polished granite. This casing has now disappeared, but some fragments of it may be seen in the British Museum. The passages in the interior which lead to the secreted burial chamber are still lined with highly polished granite slabs and these are so

nicely fitted together that it is very difficult to detect the joints.

It is the magnitude of the whole, combined with the ingenuity shown in fitting the parts together, which impresses every beholder, and confronted by a seeming miracle it would be inhuman not to inquire how it was done. The physical labour involved in the construction of the Great Pyramid must have been prodigious. Many of the limestone blocks weigh fifty tons and measure thirty feet in length, and they are worked with the nicest exactitude. The quarries from which this stone was taken are fifty miles from Ghizeh, and the granite was probably brought from a distance of 500 miles. And this was done well over 4,000 years ago. Once it was stated that 100,000 workmen were engaged for twenty years on its construction; but this is probably an underestimate, and modern scholarship inclines to the belief that the erection of the three pyramids at Ghizeh provided continuous work for three generations. So marvellous an undertaking can hardly be considered prosaic, but apart from the wonder of its actual construction there is a fascinating

question, which more immediately concerns us, connected with its design. Is the shape merely the fulfilment of the conditions laid down by the requirements of the building? or has it also some symbolical meaning?

From the point of view of construction the Pyramid is no longer a mystery. Just as the "mastaba" grew out of the earth-mound of the primitive grave, so the pyramid was gradually evolved from the mastaba. Archæological excavations during recent years have enabled us to follow the stages of its progress, and the important link between the two is the Stepped Pyramid at Sakkara which is built up over the funeral chamber in a series of terraces. The monument is a nest of walls, each wall nine feet thick, each sloping inwards at the mastaba angle, but diminishing in height from the centre outwards, so that the tops of these walls form a series of terraces each about thirty-four feet apart. The base is not square, for it is forty-seven feet longer from north to south than from east to west, but though not designed as a true pyramid, it is the parent of pyramids.

Sir Flinders Petrie has shown that we may

regard a ruined structure at Meydum as the first pyramid proper. This also was built up by inclined mural layers, and was originally planned on the model of the Sakkara structure, only with a square base; but after several circumvallations had been added to form the series of steps, there was a change of plan, and the building was completed by an external casing of fine masonry which sloped continuously from the base to a point. Thus, according to the evidence discovered by Professor Petrie, the first pointed pyramid was the result of an after-thought which occurred to some Egyptian mind while a stepped tomb was in course of construction.

Psychologically the crux of the matter is the point of the pyramid. Was this only added as the best possible top-dressing to stand weathering—as it certainly is—or did it also have some inner significance? It is impossible to believe that the form of the Pyramids was purely utilitarian. Obviously their shape enshrines a desire to attain height, to build something that may pierce into heaven itself, and a proof of this may be found in the fact that the angle

of the later Pyramids tends to become more acute. The general angle of the Great Pyramid is $51^{\circ} 52'$; of the Second Pyramid at Ghizeh, $53^{\circ} 10'$; of the north Pyramid at Dahsur 55° .

Spurred into being by religious fears connected with the survival of human personality after bodily death, the Pyramids have risen superior to their origin; for it can no longer be said that the emotion they express is one of fear. "All the world fears Time," said an Arab writer in the twelfth century, "but Time itself fears the Pyramids." Indeed there is a serene sense of triumph in their monumental stillness which has little to do with fear, and one need not be an occultist to feel that, whether or not by the conscious effort of their builders, the Pyramids remain a lasting expression of the aspiration of the soul, living on earth, but aspiring to heaven.

Architecturally, in its lasting effect on the mind of man, the Great Pyramid is a superb success. Practically it was a dismal failure. Notwithstanding the immense strength of the structure which has endured the storms of time,

notwithstanding the immense ingenuity with which the entrance to the interior (in the 18th course, about 47 feet above the base, on the northern side) was concealed and blocked up and the true passage to the burial chamber confused by blind alleys, false doors and dummy rooms, long, long ago the secret of the burial-place was discovered; the tomb was rifled and the dust of Khufu (or Cheops) was scattered and lost. If this tyrannical Pharaoh came back to-day he could not find a shred of his skeleton. From a practical point of view there is truth in Lord Byron's doggerel lines—

“Let not a monument give you or me hopes,
Since not a pinch of dust remains of Che-ops”:

but the monument remains, and a poet might well have devoted more polished lines to the nobler purpose of exhibiting the Great Pyramid as a lasting example of the manner in which Art outlives Utilitarianism.

As time went on the Pharaohs depended more and more on cunning and less on brute strength to keep their burial places inviolate. The

bodies of the great were hidden away ever more secretly, and the chief architectural displays were made no longer over tombs but in temples.

The Pyramids belong to what is known as the Memphite era (about 3000 to 2000 B. C.) because during this period the city of Memphis, not far from where Cairo now stands, was the political and artistic capital of Egypt. The Pyramids of Ghizeh and most of the other great Memphite monuments date from the earlier part of this era, and the arts which reached a high state of perfection during the Fourth Dynasty declined towards the end of the Sixth Dynasty and from then on till the Eleventh Dynasty—which closes the Memphite era—they remained in a state of stagnation.

At the end of this era the Theban nobles captured the political power, conquered Memphis and set up what is known as the "Old Empire" of Thebes, which at once became the new centre for politics and commerce. The new capital, however, did not at first bring new life into the arts, and Memphis still remained the chief artistic centre. Little architecture of the First

Theban era (about 2000 to 1580 B. c.) survives, but what remains shows that pyramids and quadrangular mastabas gradually were abandoned in favour of subterranean tombs, usually excavated in the side of a limestone rock and sometimes of immense size. The best surviving examples of these tombs are at Beni-Hasan in Central Egypt, and their aspect is indeed expressive of that Fear which agitated the Egyptian mind. A portico with columns, sometimes flanked by huge terrifying statues, is carved out of the solid rock and gives access to a colonnaded hall.

The column, we may imagine, originated in the tent pole which was then adapted for use in wooden structures; and though none of these very early wooden buildings exist to-day, we know a good deal about their appearance and construction from the rude drawings of them which appear on contemporary vessels and objects which have survived. In these illustrations we find posts which are the prototypes of the later stone columns, and these posts often have a swelling projection at the top like a capital. From a careful study of the earliest

Egyptian pillars, the French savant Foucart has been able to prove that the Capital, which plays so great a part in the decorative aspect of European architecture, originated in use: the rudimentary capitals were not a separate part of the wooden post, they were merely projections which served to keep from slipping the horizontal bundles of reeds which formed the roof. Similarly the base of a column is another legacy from the days when buildings were of wood, for though it is not absolutely necessary for a stone pillar to have a plinth, yet it was advantageous to slip a low stone block, round or square, beneath the wooden post to prevent it from sinking into the ground. Thus the ideas behind what are now decorative parts of a column were in their inception serviceable.

Stone columns with a variety of decorated capitals—mostly inspired of leaf forms—were in use in Egypt long before the First Theban Empire, but perhaps because so little else survives they have now become prominent features. Another characteristic of this epoch apparently was the more general use of obelisks which, from their shape, appear to have been suggested

by the Pyramids and were certainly invented in earlier times. Some archæologists have thought that they originated as boundary stones, but eventually they became connected with sun-worship and their tips were often gilded to catch and reflect the rays of the sun. Very probably they always possessed a sacred significance. One of the earliest structures of the kind was a narrow square brick tower which capped the top of a pyramid near a temple of Ra, the Sun-god, built by the Memphite king Ra-Enuser. Sir Gaston Maspero maintains that the obelisk was not only erected in honour of the Sun-god, but "was the god himself," that is to say, it was regarded as a sacred pillar representing the deity. A similar interpretation has been put forward by Professor Lethaby who regards obelisks as in part the embodiment of a structural idea, "the delight in balance," and in part "the outcome of an ineradicable tendency to worship big stones which has always been one of the forces at work in Architecture."

Whatever the secret of its origin, however, the obelisk—like the pyramid—is pre-emi-

nently an expression of the yearning to attain height. During the Memphite period obelisks were comparatively small, but during the Twelfth Dynasty, which initiated the First Theban Empire, they began to attain great height, though the tallest of all were erected some 500 years later at the beginning of the Second Theban Era. The greatest known is that of Thothmes III, 109 feet high, which now stands in front of St. John in Lateran, Rome. Another memorial of the same monarch is the well-known "Cleopatra's Needle" on the Thames Embankment in London, which some 3,500 years ago adorned his temple at Heliopolis, thence was taken to Alexandria and from there brought to England. In passing we may note that its familiar title is not exactly a misnomer, because "obelisk" is derived from a Greek word meaning "spit" or needle.

These mighty monoliths testify not only to the skill of the Egyptian workmen but also to the splendid material they were able to use, and their stoutness has enabled them to withstand many far journeys and many strange adventures. Egyptian obelisks are to be found

not only in London and Rome; they have been dragged away from their native place for the adornment of Paris, Constantinople, even New York; and wherever they go they carry with them not only some fragment of the romance of Egypt, but also a hint of man's perpetual ideals.

Of all Egyptian monuments the Pyramids and the Obelisks are the simplest and the most universal in their appeal: for centuries they have seized upon the imagination of the world, because what they express is not the peculiar idiosyncrasy of one age or of one nation, but the vague longing of all humanity.

After some four hundred years of power, the Theban Empire was invaded and conquered by a foreign race, and Egypt was ruled for a time by the so-called Hyksos or Shepherd Kings—"Shepherd" because these invaders were nomadic herdsmen, possibly Canaanite. Then about 1580 B. C. these Shepherd Kings were expelled by Aahmes who founded a new dynasty (XVIII) and established the Second Theban Empire. As so often has happened in the history of the world, the exhilaration of vic-

tory and the joy after throwing off a foreign yoke produced a great revival of the arts, and henceforward Thebes was not only the political but also the artistic centre of Egypt. It attained its greatest prosperity between the Eighteenth and Twenty-first Dynasties (*c.* 1550-950 B. C.), and during these six centuries its splendour and wealth were the common talk of all the civilised peoples inhabiting the Mediterranean basin. The name by which it is known comes to us from the Greeks who changed the native "Ta-apé" into "Thebes."

On the site of what was once Thebes—a great city twelve miles in circumference—the ruins of its splendour may still be seen, and the remains of the great temples of the New Empire annually draw tourists to Karnak and Luxor. It would be rash to assert that any new principle in architecture was introduced during the Second Theban Era, for all its elements appear to have been discovered in earlier times, and though the Egyptian temple-builders persisted in showing a preference to support weight by a horizontal resting on two perpendiculars, the arch and the vault were well known to

them. We may note in passing that the principle of the arch is revealed in the roofing of the "King's Chamber" inside the Great Pyramid. In order to make the roof of this chamber strong enough to resist the enormous weight of the pyramid overhead, five huge stone slabs—each with a small air-space between them—are fitted into the stone-work over the ceiling, and then *above them*, to take the first fierce downward thrust, two massive slabs are tilted to form an oblique angle ($\wedge$) the apex of which is exactly over the centre of the opening. These massive slabs are worked diagonally so as to fit closely together, like the corners of a frame, and so constitute a rudimentary arch.

Why did the Egyptians, when they knew all about arches and vaulting,* persist in adhering to a primitive method of supporting weight which we associate with Stonehenge and other ancient British remains? The answer would appear to be that to the Egyptian there was something sacramental in the horizontal supported by two perpendiculars, and that there-

* Vaulted tombs, assigned by experts to the Third Dynasty, *i.e.*, about 2800 B. C., have been excavated at Reququah by Prof. Garstang.

fore it was used in later as well as in earlier times, not so much because it had been found to be practical, but because it was meant to be symbolical.

Sir Gaston Maspero has told us that the Egyptian temple was built "in the image of the earth such as the Egyptians had imagined. The earth was for them a sort of flat slab more long than wide, the sky was a ceiling or vault supported by four great pillars. The pavement of the temples represented the earth, the four angles stood for the pillars, the ceiling, vaulted at Abydos, or more often flat, corresponded to the sky."

The Egyptians, of course, had no idea that the earth was round, and there is evidence for supposing that they imagined the sky to be flat as they thought the earth was. The symbolism begun in the very elements of the structure was continued in its decoration, and the ceiling was painted blue, punctuated with five-pointed stars, and sometimes adorned with sun and moon in imitation of the heavens. The pavement, on the other hand, which represented the earth, was appropriately decorated

with forms of vegetation. Sometimes, as a memorial of foreign conquest, the monarch had executed in the temple carvings of plants and animals, not indigenous to Egypt, which he had seen abroad; but these are always allotted to their right sphere, or rather their right plane. "The ornamentation," says our authority, "was restricted to a small number of subjects, always the same."

To give the reader an idea of what an Egyptian temple looked like in the days of its glory, we cannot do better than quote a passage in which Mr. Arthur Weigall imaginatively visits the temple of Amenhotep III, now known as the Temple of Luxor, as it was in the time of Rameses II:—

"We approach it by the broad Avenue of Sphinxes which runs from here all the way to Karnak, like a great boulevard bisecting the city. Beautiful gardens have recently been planted in front of the new pylons (gates) of the temple; and the colour of the flowers, the red and white pennants fluttering from the tall flagstaffs which stand on either side of the doorway, the gold-capped obelisks of pink

granite, and the vivid paintings on the white walls of the building itself, combine to create a picture of extreme brilliance. The huge doorway of the temple is plated with electrum and studded with gold, and through it we enter the forecourt, surrounded by richly painted pillars, between which stand huge statues of Rameses as though stepping out into the sunshine from the shadow of the magnificent colonnade. Thence we pass into the great hall built by Tutankhamen a century ago and finished by Horemheb, on the walls of which are painted and sculptured scenes representing a festival of the god Ammon, and showing the procession which passed on that occasion between this temple and Karnak. So we come to the large forecourt built by Amenhotep III, the pavement of which is partly covered with sheets of silver; and beyond it, approached through a forest of pillars, is the main temple, only open to the priests, where, in a superb shrine, the golden ark of Ammon rests."

This graphic description of the temple of Luxor, which Mr. Weigall knows so well, has a general application, for nearly all the temples

of the Second Theban Empire were laid out on the same plan and had the main features which he vividly pictures. The long avenues of sphinxes leading to the outer gate were not idle ornamentation; to the superstitious Egyptians these sphinxes were guardians who prevented evil influences from approaching the holy place. The gateways (or pylons) themselves deserve particular attention, for they are an outstanding feature of the New Empire architecture. The portal of the temple itself was usually a great square gatehouse flanked on its sides by two taller rectangular towers equally massive, and the outside walls of these towers usually sloped upward and inward at a mastaba angle. The outer entrance, sometimes called the *propylon* to distinguish it from the pylon which opened immediately into the temple, was an equally massive structure—one at Karnak is 104 feet high, 60 feet wide, and 33 feet deep—and the horizontal top was decorated with a sculptured frieze, surmounted by a cornice; but striking as the individual pylon is in its appearance, the salient feature of Theban exteriors was not *a* pylon but a sequence of

pylons. Later Pharaohs sometimes increased the number of the courts and chambers of a temple; but they seem always to have increased the number of Gates of Honour. Homer wrote of "Hundred-gated Thebes," which suggests that in his day the multiplicity of its gateways was the first thing that impressed the traveller.

It is not difficult to perceive the idea which lay behind this series of ornate entrances. Just as the successful suitor at the Vatican is made to feel the tremendous honour he is about to receive by being conducted through a seemingly interminable series of ante-chambers before he is at last ushered into the presence of the Pope, so the visitor to Thebes was made to realise the importance of the city and its temples by the number of entrances through which he had to pass before he ultimately reached his goal. What is better than a gate? Two gates. What are better than two gates? Four gates: and so on. The idea may seem childish, but it is universal and eternal: it is the architectural expression of Napoleon's faith in "big battalions."

These pylons, the ancestors of the Triumphal

Arches of Rome and France, were the conspicuous feature of Theban exteriors; the most notable element of the interior was the Column. This was in part the result of the perpendicular-and-horizontal method of construction favoured, or, to use the language of the profession, of the "architaval" principle. One example must suffice, and we will choose the most famous; the interior of the great Hall built by the father of Rameses II, Seti I (*c.* 1350 B. c.), for the Temple of Ammon at Karnak. This hall measured 340 by 170 feet, and its roof was supported by 134 columns in 16 rows. The shafts of the two central rows were 60 feet high and 12 feet in diameter.

"No artist," wrote J. Fergusson, "has yet been able to reproduce its form so as to convey to those who have not seen it an idea of its grandeur. The mass of its central piers, illuminated by a flood of light from the clerestory, and the smaller pillars of the wings gradually fading into obscurity, are so arranged and lighted as to convey an idea of infinite space; at the same time the beauty and massiveness of the forms, and the brilliancy of their coloured

decorations, all combine to stamp this as the greatest of man's architectural works, but such a one as it would be impossible to reproduce, except in such a climate and in that individual style in which, and for which, it was created."

A similar effect is produced in St. Peter's at Rome, where the actual vastness of the interior is still further magnified in imagination by the vistas seen through innumerable arches. But if the architral principle favoured the employment of columns, it does not explain the extraordinary fascination which these always have for man and their constant introduction, even when not structurally needed, into every style of architecture.

Sir Christopher Wren, philosopher as well as artist, once attributed man's delight in columns to a pre-natal disposition acquired from ancestors who worshipped in the groves of the forests. It was no idle fancy, for Wren's hypothesis is now supported by the evidence of Mycenæan art obtained from the excavations at Crete, and Sir Arthur Evans has shown that at the dawn of European civilisation columns were worshipped as gods.

Just as the Egyptians seem to have solved nearly all the problems of practical construction, so to a great extent they exhausted the possibilities of columns. The earliest columns were square, then by planing off the angles the octagonal column was born, and when these angles were shorn again the column with sixteen facets arose. This sixteen-sided column, when crowned by a flat tablet or abacus bears so striking a resemblance to the fluted Doric column of Greece, that a former generation of Egyptologists gave it the name of "Proto-Doric," but though Greece was much indebted to Egypt as her tutor in all the arts, at no time did Egyptian art exhibit the grace and exquisite proportions which distinguished the art of the Greeks. The character of the two is utterly different: where Greece enchants us, Egypt awes.

With the Second Theban Empire ends the great period of Egyptian architecture. After its collapse, about a thousand years before Christ, the Priests of Ammon, who had long been immensely powerful, seized the reins of government and their High Priest became the

king *de facto* of southern Egypt. In the north, a new dynasty of "Tanite" Pharaohs made headway for a time against foreign invaders, but their power gradually declined, and first the Ethiopians overran the country and then it was completely subjugated by Assurhaddon of Assyria, who sacked and destroyed Thebes in 661 B. C. Some years later a Libyan prince, Psamtik I, liberated Egypt from the oppressor and founded a new dynasty whose chief city was Sais on the western branch of the Nile. In Egyptian chronology the Saite Era is used loosely to cover the period between 950 B. C. and the conquest of Egypt by Alexander the Great in 332, and though it would be incorrect to say there was no art of any importance during this era, it was generally speaking a time of decadence. Saite art emphasises the worst features of Egyptian art and becomes prolific in monstrosities. One example may be given of its perverted tendency. In a desperate attempt to be original and "surprising" at all costs the columns of the Saite temples at Philæ all have different capitals. Scarcely two quite

alike can be found. This desire for novelty often leads to nothing better than topsyturvydom, as when a bell-capital is reversed to look like a helmet or when a column is made to taper *downward*. Now it may safely be laid down as a canon of criticism that while an exaggeration of nature is permissible in art, a *reversal of nature* is criminal and abhorrent to all normal and healthy people. There may be beauty in exaggeration; there can never be anything but ugliness in reversal. To illustrate the point an example may be taken from costume. The "puff" sleeve, which was an exaggeration of the biceps, was not unsightly when it was worn in its proper place above the elbow; but when, for the sake of novelty, the "puff" was allowed to slide down the forearm till it hung over the wrist, it became a monstrosity. Nobody is to be persuaded that your wrist can be thicker than your biceps; and if it could be it would be horrible, because it would be unnatural. Exactly the same law applies in architecture. If a column tapers at all, it is natural that it should taper *upwards*,

like a tree: to reverse may seem "clever," but it will never satisfy that natural instinct for fitness which leads us to beauty.

No apology need be offered for dwelling so long on Egypt, for all the elements of building may be found there—most of its triumphs, and some of its disgraces—and indeed the builders of the world are so largely indebted to this early civilisation that a modern writer is hardly guilty of exaggeration in saying "to a large degree Architecture is an Egyptian art."

A phenomenon, with which students of history are familiar, is that when art is decaying in one locality it is surely commencing to flourish in another. While Egyptian art was decaying under the Saite kings, contemporaneously the art of Assyria sprang into existence. So deeply has that war-like race impressed itself on the memory of man, not only by its achievements but by its art, that it is with something approaching a shock that we realise that the Assyrian was comparatively a short-lived Empire. The Old Babylonian Empire lasted from about 4000 to 750 B. C.; the Assyrian Empire, which swallowed it up and

assimilated its civilisation while giving a new virility to its art, only lasted from 885 to 606 B. C.

Of the earlier Babylonian or Chaldean architecture little remains; stone is hardly to be found in Southern Mesopotamia, but the excavations of recent years have brought to light remains of huge brick structures which to a great extent have revolutionised our ideas as to the origins of architecture. From the evidence now available it seems more than likely that the Egyptians have been given too much credit for invention, and that they learnt much of the art of building from Babylon. Although the written records of Babylonia go back to about 4000 B. C. they tell us nothing of a primitive age in Mesopotamia, for the people even then were highly civilised. Fine works of sculpture dating from about 3000 B. C. have been discovered; a massive brick building with an arch, found at Nippur, is held to be at least 800 years earlier, which means that it is older than the First Egyptian Dynasty and nearly a thousand years older than the Pyramids of Ghizeh. A long inscription, de-

ciphered in 1907, tells how the priest-prince Gudea (*c.* 2700) replaced an older temple by building an immense new one with numerous courts and shrines, dwellings for the priests, stabling for the sacrificial animals, storehouses and granaries, and a tall campanile or temple tower of several stories, each decreasing, one above the other. This method of building in tiers or terraces seems to have been characteristic of Babylonia, and may have had its origin in swampy ground or periodical inundations which necessitated a lofty platform as a sub-structure. These platforms were of sun-dried faced with kiln-baked bricks, and over them the temples were built in stages connected externally by flights of stairs. The top storey was the sanctuary. Assuming, as we may do, that the palaces and dwelling-places were similarly constructed, we may readily see how the famous "hanging gardens" of Babylon came into being.

The remains of Gudea's temple or palace have been discovered at Tello, the ancient Shirpula, and the interior must have been as magnificent as the exterior, among the decora-

tions found being mosaic patterns of coloured stones. In the light of recent excavations it would seem as if the Babylonians knew everything about building and town-planning. They understood irrigation, had their own water supply and a system of sanitation with arched drains; they knew how to line a tank with lead, and how to cover a brick-paved court with asphalt; they had gates with bronze pivots turning in stone sockets; and unlike the Egyptians, they did not adhere to the architraval principle, for entire vaulted chambers have been found and it is certain that the Babylonians, if they did not invent the dome, were the first to use it extensively.

With all this, though we know much of the construction of Babylonian buildings, we can judge little of their effect. It seems clear, however, that while every whit as scientific as the Egyptian, if not more so, they were utterly different in character. At no period do tombs dominate the land of the living, and Babylonian architecture appears to have been quite free from that funereal element which makes Egyptian architecture as a whole an expression

of "a religion founded on cringing terror of annihilation and desperate craving for an eternity of material existence." While in Egypt the arts always had one eye on the grave, in Babylonia they turned both towards the sun.

Perhaps the differences between the architectures of the three most ancient civilisations may be best summed up by remarking the nature of their most characteristic edifice; in Egypt, the Tomb; in Babylonia, the Temple; in Assyria, the Palace. In moving their capital from Assur—whence they derived their name—to Nineveh on the Upper Tigris, the Assyrians approached a district where stone and timber were plentiful. Fortunate in having more durable materials wherewith to build, the Assyrians have been able to leave us monuments less fragmentary than those of Chaldea.

The spectator gifted with a little imagination can form quite a good idea of the entrance to an Assyrian king's dwelling from the portion of the great gateway of the Palace of Khorsabad which is at the British Museum. It must be insisted on that this exhibit is not only

sculpture but architecture. The immense scale of this portal, with its winged, man-headed lions, nineteen feet high on either side, helps us to form some idea of the massive grandeur of the palace. We must imagine this portal to be placed on a lofty fortified platform, flanked on either side by square towers—rather like the Egyptian pylons—and high walls with glazed stucco or tiles, with battlements and cornices of a deep blue; and we must imagine this gateway to lead into a great court giving access to smaller courts, each entered through similar portals, in which great bronze doors, decorated with reliefs, admit us to chambers whose walls are inlaid with ivory, gold and rare woods, or to halls panelled with the alabaster reliefs of hunting scenes, which we can study in another part of the British Museum.

Of all that meets our imaginative eye, the winged, man-headed lions and bulls will perhaps make the deepest impression, and we shall do well to study them. They are the genii of Assyria and may tell us something of the secret of her art. We need not be afraid to approach them and look them in the face, for despite

their gigantic size they are not in the least terrifying. They are not even unnatural, though they certainly present a strange association of natural features. When we get close enough we shall see that the faces of these creatures are not only human but positively genial. A child could talk to them, for they have quite a friendly smile on their lips and a look of pleased surprise in their eyes. As we come away we may ponder on what a difference there must have been between the souls of Egypt and Assyria, if Assyrian "monsters" are more human and kindly than the sculptured effigies of Egyptian kings.

Chapter III

The Age of Grace

“**T**HE day is coming,” wrote Ruskin, “when we shall confess that we have learnt more of Greece out of the crumbled fragments of her sculpture than even from her sweet singers or soldier historians.” That day has surely come, though the great art-critic did not live to see it, and if the subject of this volume were the poetry of archæology a fascinating chapter might be written on the story of its dawning. For the excavations in Crete, Asia Minor and Greece during the last fifty years have revolutionised our ideas about early Greek history and the origins of Greek art, they have turned fables into historic facts, and the operations themselves have often been full of strange adventures.

Is it not like a fairy-tale coming true that Sir Arthur Evans, excavating at Crete in the first year of the twentieth century, should

have found on the site of Cnossus the remains of the labyrinth through which the fair-headed Ariadne threaded her way, and that he should have been able to prove to us that the story of the Minotaur was not a pure invention, but only an imaginative recital of facts connected with the human sacrifices offered to the tauriform deity Moloch? Is it not a curious paradox that we should also have learnt, incidentally, from Sir Arthur's discoveries that the horrid sport of bull-fighting had its origin in bull-worship?

Again, what reads more like a romance than that a modern archæologist should seek for hidden treasure with no better clue than a sentence written by a Greek traveller in A. D. 160 or thereabouts—seek and find? Yet that is what happened at Mycenæ. More than seventeen hundred years ago the Greek writer Pausanias describing his visit to Mycenæ, the then vanquished capital of Agamemnon and Menelaus, wrote: "Some remnants of the encircling wall are still visible, together with a gate that has lions over it. . . . There is the tomb of Atreus and of the men whom Ægis-

thus slew at the banquet when they returned from Troy . . . and the tomb of Agamemnon."

Fortunately, the "gate that has lions over it" has survived all the intervening centuries, so that when the intrepid German scholar Dr. Schliemann determined to follow up the hint given by Pausanias, he knew exactly where to begin the hunt. He sank a great pit 120 feet square near the Lion Gate, and at a depth of twenty-five feet he found six square "shaft-tombs" hewn vertically in the rock, and there among the remains of seventeen human bodies he found a vast number of ornaments of gold, silver, ivory and amber, gold diadems for the heads of the women, gold masks to cover the faces of the men, rings, brooches, bracelets and necklaces innumerable. It is true that Dr. Schliemann did not actually find the tomb of Agamemnon, any more than in his earlier excavations at Hissarlik in 1870 he found the Homeric Troy. Just as he then found an earlier Troy, which had flourished a thousand years before the reign of Priam, so at Mycenæ he found objects considerably more

ancient than the times immortalised by Homer.

This is not the place to dwell on the details—the representations on objects of costumes, arms, etc.—which have enabled scholars to give an approximate date to the relics unearthed by these excavations; what more immediately concerns us is that by the discoveries of Dr. Schliemann at Mycenæ, and by the still more extensive discoveries made in Crete by Sir Arthur Evans, it has now been definitely proved that a very wonderful and high state of civilisation existed in this part of Europe from, at least, 3000 B. C.

Now at the close of the nineteenth century it was commonly said “we have little authentic Grecian history before the date of the first Olympiad (776 B. C.)”—this sentence was actually written by an English architect in 1900, before the results of the Evans Expedition had become known—and the new knowledge that the last twenty years have given to the world compels us not only to revise our ideas about Greek history, but also to reconsider former conclusions regarding the origins

of Greek architecture. Formerly it was thought that in the beginning the Greeks owed almost everything to Egypt, and no doubt their debt to it was considerable, but nowadays it is our duty to remember that underlying the perfected achievements of Greece is the substratum of this earlier Cretan and Mycenæan or, as they are jointly called, Ægean art.

This new knowledge does not in any way alter the effect on us of Greek Architecture; but it does help to explain it. By the remains found at Cnossus it is clear that Greek art must be linked up with Mesopotamia as well as with Egypt, and it seems probable that the great palace of King Minos had more resemblance to a Babylonian or Assyrian structure than to an Egyptian palace. The Ægeans evidently possessed an engineering skill superior even to that of the Assyrians; their streets were paved and had socketed pipes for drainage and water supply; they built wide staircases with returning flights—the first known; they used blue glass (the cyanus of Homer?) for inlays and mosaics; and they bettered the ceiling decoration of Egypt by studding the interior of a

dome at Tiryns with attached stars of gilt bronze.

While these things, and many others, excite our wonder, it is in the minor arts that we get the fullest revelation of a quality, new to the ancient world, that heralds the subsequent achievements of classical Greece. This is the quality of charm, most definitely expressed in the decoration of Minoan pottery, but also discernible in the wall-paintings—sometimes painted over low-reliefs—which decorated the interior of apartments. In studying these we become conscious of an attempt, not only to awe or astonish, but to please. If we look at a photograph of “The Cup-Bearer” fresco from Cnossus we shall find in it a grace of line that was unknown alike to the Egyptians and the Assyrians. Both in the wall-paintings and in the conventionalised decoration of pottery, we find the beginning of a study of nature for its own sake, not the mere use of natural forms as symbols; shells, sea-plants, flowers, leaves and sea-creatures are drawn with the grace that comes when the draughtsman is seeking not only after beauty but truth. In the

products of Ægean art we see for the first time an approach to Simplicity, not the rude simplicity of a primitive people who have little skill and scanty materials, but of a people who, knowing what ornateness is and how objects may be elaborated for the sake of display, have enough refinement deliberately to choose the better part and exercise restraint.

This simplicity and restraint in decoration is the characteristic note of Greek art. A Greek temple is as simple as a marquee; only it is far more beautiful, firstly because it is constructed of nobler materials, and secondly because each part of it is made as perfectly as possible to fulfil its function and to express its purpose. Built to be the home of a god, it appropriately expresses divine rest and perfect peace.

To provide shelter for the deity whose image was enshrined in it, that was the primary purpose of a Greek temple. Therefore it was not necessary to make it very big, its size was determined by the labour and outlay held to be commensurate with the honour it was desired to pay to the particular deity. Strange as it

may seem to us, the temple was wanted for the god, not for the worshippers. Greek religion was a nature religion, an open-air religion, prayers were offered up to the deity from *outside* the sanctuary—anywhere within sight of the temple would do—and there was nothing “congregational” in their form of worship.

From this attitude of the Greeks towards their gods two things resulted; the Greek temples were comparatively small, much smaller than the gigantic temples of Egypt and Babylonia, and they were designed for *external* rather than interior effect. Therefore the principal columns, which are found inside an Egyptian temple, in a Greek temple are always *outside*. The Egyptian temple was designed to awe the worshipper by the grandeur and vastness of its interior; the Greek temple was built on an eminence that it might be seen from afar.

The smaller size of their temples helped to free the Greeks from the semi-civilised delusion that Bigness is Beauty, and not being disposed to rack their brains how they might make their

buildings bigger and yet bigger, they were able to devote all their energies to making each part still more perfect in workmanship and design. This tendency to prefer quality to quantity is the first step towards perfection in any art.

Historians of architecture invariably lay stress on what are known as the "classical orders" and are careful to emphasise the differences between "Doric," "Ionic" and "Corinthian" styles; but the truth is that in their *general* effect all Greek temples are very much alike, and the differences between them are only differences of detail. Indeed one may say that the differences are limited to the columns, each style being characterised by the use of a particular form of column accompanied by a series of mouldings and proportions found *only* in conjunction with that column. It is not proposed here to particularise these mouldings, descriptions and diagrams of which may be found in any handbook or encyclopædia; it will suffice to mention that the Doric, the oldest, column can always be recognised because it has no base and has a simple flat square

capital which no doubt had its origin in a flat stone placed to help in distributing the weight from the horizontal on the upright. The Doric column is always fluted, but has fewer flutings than the Ionic and Corinthian, which range from twenty-four to thirty-two.

The distinguishing features of the Ionic, a more slender column, are two; firstly, it does not spring directly from the pavement but stands on a moulded base, and secondly, its capital curls round on either side in a feature like a scroll. These spiral scrolls at the top of the Ionic column have a more than technical interest, because they betray Asiatic influence. Though the column did not play an important part in Assyrian architecture, Assyrian bas-reliefs show columns with small scrolls on the capitals. The Corinthian order, distinguished by elaborate sculptured foliage on the capital, was a late comer, hardly established before Greece was conquered by Rome.

These slight differences in the columns do not materially affect the impression a Greek temple makes on us, but they do express with some subtlety a distinction between the races

which formed the Greek nation. For the Greek nation, like most others, was the result of a mixture of races, and there was just about as much difference between the Dorians and the Ionians, between the men of Sparta and the men of Athens, as there is between Cornishmen and East Anglians. It would not be altogether inapposite to describe the Ionians as the "Celtic fringe" of Greece, for to some extent they represented the aboriginal inhabitants driven further afield by the Dorian invaders; but there is nothing like as much difference between Doric and Ionic as there is between Celtic and Saxon art. From another point of view the Ionic might be regarded as a colonial style—approximating to the "Colonial Style" of the United States, which after developing on its own lines, also shows signs of returning in a new form to the Mother Country—for the Ionic style first arose among the Ionian colonies settled in Asia Minor and, as we have already seen, shows the influence of the East. It is a softening of a former severity due to the vicinity of the luxury-loving Orient.

A very sensitive student of architecture might be able to discriminate between English and Scottish buildings by a certain touch of hardness in the latter, and we need to be very sensitive to feel acutely the gentler aspect of Ionic architecture. Further, we must guard against allowing our imagination to run away with us and remember that there are considerations of date which cannot be ignored. The Doric is the earliest of the Greek orders and it was used all over Greece, not only in states which derived from Dorian progenitors. The Athenians, whose country was never subjugated by Dorians, who were themselves of the Ionic race, used the Doric style of architecture even in the late Periclean age. The Parthenon itself is a Doric structure.

To sum up, then, it may be submitted that to those who are more concerned with the spirit than the letter of architecture, far too much fuss is often made about the distinctions between Doric and Ionic columns. Both are graceful, both are simple, both are beautiful. The Doric, we may agree, is the simpler of the two, is the sturdier and the more severe; the

Ionic is perhaps the more graceful, and its slender form seems to hint at Eastern effeminacy and tell of a race which fundamentally was more art-loving than war-like; but, so much acknowledged, the greater fact remains that, whatever its columns, a Greek temple is a Greek temple. Some have thought the great Temple of Poseidon at Pæstum even more inspiring than the perfection of the Parthenon on the Acropolis. Greek temples may differ from one another in beauty as do the stars; but all have this in common, an effect of unparalleled grandeur combined with the utmost simplicity and an extraordinary grace.

We have seen that the Greek temple was built not as a meeting place for worshippers, but as a home for a god; and this accounts for its difference from any other temple the world had yet seen. For instead of being built on the model of a great assembly hall, it was constructed very much on the lines of the home of a Greek citizen, not unlike the home of Odysseus as described by Homer. Mr. H. B. Cotterill has given so clear and concise an account of the plan and development of the

Greek temple in general, that it would be sinful not to quote it in full:—

“It was generally an oblong—sometimes a round—building of wood or sun-burnt brick, and had a porch. This porch sometimes had side walls called *antæ*, and a couple of pillars in front, so that the whole building now consisted of an inner shrine (*naos*) and a forecourt (*pronaos*), as shown by the relics of the Treasure House of Megara at Delphi. Then the row of pillars, or columns, was extended across the whole front, and the side walls were omitted, so that an open portico was formed, as in the Erechtheion. Then such a portico was placed at both ends of the building, as in the Nike temple at Athens. Then a series of columns was extended round the whole building, which was said to be *peripteros*—*i. e.*, ‘aisled on all sides’; and the porticos thus had two rows of columns, as in the Parthenon. Lastly, *two* series of columns were placed round the whole edifice (called now *dipteros*, two-aisled), and there was a many-columned portico at each end, as in the Artemis temple at Ephesus. The inner sanctuary (*naos* or *sekos*, shrine or

fold) was generally surrounded by walls, inside which were frequently, as in the Parthenon and at Pæstum, columns (sometimes in two tiers, one above the other) forming a nave and side aisles and perhaps supporting the roof—for it is very doubtful whether the sanctuary of a Greek temple was ever entirely *hypæthral* (under the open sky). Most probably there was an aperture in the roof (as in the Roman Pantheon) to allow the image of the deity to be illuminated by the morning sun.”

From this admirable explanation of its genesis, we may see how naturally and, as it were, inevitably the Greek temple was evolved so that to the end it preserved, with added grace, its original quality of simplicity, and what had begun as a simple brick dwelling-place ended in the perfection of the Parthenon.

By common consent the Parthenon at Athens is the most exquisitely proportioned building ever set up; and, let us note, it is comparatively small. The measurements of its base are 228 by 101 feet. The exact meaning of its name is not beyond dispute, for it is uncertain whether it covers the whole

building as "The Dwelling of the Virgin Goddess" or originally denoted only a compartment behind the sanctuary, entered from the west portico, as "The Room of the Virgins," that is to say, of the priestesses of Athene. Apart from its decorations, the wonderful sculptures which as details hardly come within our purview, the building itself in its beauty of design and delicacy of workmanship is the nearest approach to perfection in architecture that the world has yet seen.

Many attempts have been made to analyse its qualities by a minute dissection of its structure, but the only really helpful contribution to our knowledge was discovered centuries ago by Vitruvius who noted that, in order to correct the slight declination of human eyesight, the use of absolutely straight lines, horizontal or vertical, is avoided. The columns taper from the centre and gently diminish the width of their flutings, they lean very slightly inward toward the centre of the building. The steps and marble basement are not rigidly horizontal, but slightly convex. The spaces between the niches of the frieze—the metopes—

are not absolutely equilateral but so proportioned that they *appear* square from below.

If the bounding lines of a column were absolutely parallel and straight in fact, to normal human eyesight that column would appear a little hollow in the middle. The designer of the Parthenon was aware of this optical delusion, and to counteract this tendency the slight swelling (*entasis*) of the column was invented. The bounding lines of the Parthenon's columns—which appear straight to us—are actually convex, though so delicate is this curve that its maximum only amounts to *three-quarters of an inch* in a height of more than thirty-one feet. The extraordinary thought and care shown in this refinement is a revelation of the thoroughness with which the Greek architects sought after perfection. For them it was not enough that a thing should *be* right by rule and measurement; it was necessary that it should *look* right. The two things, as they discovered, were not always the same, and with an unsurpassed flair for that ideal truth which is beauty, they had the intelligence and the courage to be a little “wrong” in the means that the end

might be right. The same tendency is seen in their sculpture when the artists seize on some beautiful detail of the human form—only rarely met with in nature—and make it a permanent feature in their statues. All Greek art is founded on nature, and to say that they endeavoured to improve on nature would be to suggest what is false. But they loved nature so much that they wanted to present her always at her best. The ideal perfect forms they created were not non-existent, in parts, in the natural world; what the Greek artists did was to bring the perfect parts together.

So with their architecture, they did not suddenly invent a new kind of building with a new kind of beauty. What they did was to adopt one way of erecting buildings and then—instead of searching after “new things”—patiently persevere in the endeavour to make that kind of building a little better, to make each of its parts ever more perfect, more graceful, more beautiful, and to fit them still more nicely together so that the whole might be still more enchanting.

Now that recent researches have shown us

the almost barbaric origin of the forms they adopted and developed, it may be questioned whether *materially* the Greeks actually invented anything, that is to say any new device in construction. They established various kinds of mouldings and three types of columns—for the Corinthian, with its capital of sculptured foliage, was a Greek creation, though so late that it is almost more characteristic of Rome than of Corinth—but these are small things in comparison with the total effect of Greek architecture. It is not the grace of the details that makes a Greek temple one of the wonders of the world; it is the grace of the whole. Beautiful as are the forms of these temples, there is something still more beautiful: it is the spirit they envelop.

For centuries architecture had been priest-ridden or oppressed by royal tyrants; the Greeks gave it liberty and brought it into the open air. For centuries men had put up buildings either to awe and strike terror into their fellows, or to amaze and dazzle them by a display of the wealth and power at their command. The Greeks eschewed these vulgar

ends and aimed only at putting up something which would do honour to the deities who encouraged and protected men in all their activities, something which would gladden the hearts of all beholders. The world was purged of fear, and a door flung wide open to an existence of joy. Even following their great victories over the Persians the Athenians indulged in no ostentatious exhibition of pride. The record of the victory was decorously commemorated on details of the building, but the effect of the whole was the same as ever, a fitting home for the patron-goddess of their city, a stately landmark to which eyes might turn in thankfulness and joy.

Wonderful as the buildings of ancient Egypt may be they oppress us: they seem perpetually to be croaking, "To-morrow we die." But when our eyes light on a Greek temple we seem to hear a voice sweetly singing, "Rejoice, in that ye are alive."

That is the great message that the builders of Greece have bequeathed us. It is the secret of the perennial charm of temples which never grow old, never become stale, but are always

inspiring and invigorating. The Parthenon may be in ruins, but it does not merely invite us to ponder on the past; it does not lure us to speculate as to the future; to-day, as two thousand years ago, the first message it delivers us is to tell us to be thankful for the graces of life and the beauties of the Present.

When Renan stood on the Acropolis and turned his wondering gaze from the Parthenon to the Theseion, and from the Theseion to the Erechtheion, and back again from the Erechtheion to the Parthenon, it seemed to him that he was the recipient of a divine revelation. Remembering in tranquillity the emotions he then experienced, he wrote: "The whole world seemed barbaric, the Orient shocked me by its ostentatious pomp and its impostures, while the majesty of the best Roman seemed only a pose compared to the ease and simple nobility of the citizen who could comprehend what made the beauty of the Parthenon."

It is one of the saddest things in the history of the world that the great period of Hellenic art should have been so short in its duration.

We know now that the preparation for this period was much longer than was formerly supposed, and that the master-work of the Periclean era was preceded by long centuries during which there had been constant though comparatively rude artistic endeavour. But all the greatest monuments of Greece were conceived and executed within a space of little more than a hundred years. Three generations saw the brilliant flowering of Greek art, the most perfect the world has ever seen; the fourth saw the beginning of decay. But though the actual time of its maturity was lamentably short, the Golden Age was long enough to stamp itself indelibly on the memory of man. "The Greek," said Ruskin, "rules over the arts to this day, and will for ever, because he sought not for beauty, not first for passion, or for invention, but for Rightness."

It was the passion for Rightness that produced the perfection of Beauty.

Chapter IV

The Age of Strength

TWO familiar phrases, bandied about till they have become hackneyed, roughly indicate the distinction we all recognise to exist between the achievements of Athens and the monuments of the Cæsars. We speak of “the *glory* that was Greece” and “the *grandeur* that was Rome.” Now *grandeur* may be a fine thing, but the word involves the idea of a self-conscious display that would have been distasteful to a Greek architect of the classical period. The Greek buildings were beautiful, the Roman were handsome.

With all the beautiful detail of its sculptured capital, the Corinthian column—to which brief allusion was made in the last chapter—was nevertheless a lovely weed that sprang up in the Greek garden when flower-time was nearly over. It grew apace in the Roman world. The Corinthian column marked the be-

ginning of a time when the old passion for moderation, for mean and measure, was beginning to be set aside for a redundancy of ornament that might excite wonder; in short, it marks the moment when Greek art was ceasing to be Hellenic and on the way to become Hellenistic.

All Roman architecture may be said to be more or less Hellenistic in the sense that it was based on the Greek models, but it was actuated by a spirit so contrary to that of the Greeks that the effect of it was totally different. Formerly it was thought that the Romans derived much of their architecture—and particularly their use of the arch—from that mysterious race in Central Italy known as the Etruscans, but the new archæology has practically demolished this theory and has been able to prove pretty conclusively that the Etruscans imported most of their ideas, as well as their vases, from the Greeks. This theory received its death-blow when it was shown that the great arched drain, the Cloaca Maxima, at Rome, did not date as had been thought from the days of the Tarquins, but had been constructed during the

Republican period. Greek architects continued to employ the beam as a dominating element in construction, because, with characteristic simplicity, they adhered to a method and style that was inevitable when houses were made of timber; but they were not ignorant of the arch. Arches have been found at the Piræus, and at Cuma there has been discovered a Greek tomb, supposed to date from about 400 B. C., which has an arched doorway.

Eastern in origin, the arch and the dome appear to have been brought to the notice of Greek builders as a result of the conquests of Alexander the Great. Though the new capital be built in Egypt about 332 B. C. was utterly destroyed, documentary evidence leaves no doubt that the old Alexandria was vaulted and domed. There is ample evidence, then, for holding that the arch and the dome were in general use in the Hellenistic world before they were introduced into Italy. The earliest European cupola known is over a bath at Pompeii, and that city was not Roman but derived its art from Alexandria.

The arch, perhaps the most prominent fea-

ture of Roman architecture, is consequently one of the many things which the Eternal City originally owed to Greece. It appealed to the Romans because it was ingenious and practical; and so were they, so much so that writers have been tempted to say that the Romans were not architects, but engineers. There was indeed an engineering spirit very much alive in Roman architecture, and a grave defect, æsthetically, of many Roman buildings is that their ornament is not an integral part of the structure, but merely something without a function stuck on to the framework. It is not the ornamentation of something that *must* be there; it is an ornament that has no structural justification for its existence. The Lamp of Power burns very brightly in Roman buildings, but the Lamp of Truth is often extinguished.

Let us begin by examining one of the most impressive, as well as one of the oldest buildings of Ancient Rome which still survives as a whole. The Pantheon was built by Hadrian (A. D. 117-138) on the site of a still older temple founded by Agrippa, the son-in-law of Augustus. The portico, with its sixteen Corin-

thian columns of unfluted granite, 41 feet high, is a part of Agrippa's temple, and is still the most beautiful part of the exterior, a stately memory of "the glory that was Greece." Behind this noble entrance, 36 yards wide and 14 yards deep, with its massive bronze doors, stands the great circular hall or temple, 140 feet in diameter, which Hadrian had built, not to "all the gods," but to the gods of the seven planets, Apollo, Diana, Mercury, Venus, Mars, Jupiter and Saturn.

If we look at the outside we appear to see a wall of solid brickwork in which tiers and arcades of brick arches are so arranged as to support the enormous weight of the whole building. At first we may think it wonderful, till we find out *it is a lie*. These brick arches support nothing, the whole brickwork is merely a thin casing, four or five inches deep, which conceals what really does the work, *a solid concrete wall twenty feet thick*. This is what has supported the Pantheon for nearly two thousand years.

From an engineering standpoint the Romans made a wonderful discovery in the first century

when they learnt how to make and use concrete, and their concrete—chiefly derived from a volcanic product found at Pozzuoli, and hence called *pozzolana*—was exceptionally strong. It enabled them to build cheaply and rapidly on a vast scale and to erect any class of building chiefly by means of unskilled labour. The Roman, as Ruskin has said, “went in for a cheap and easy way of doing that whose difficulty was its chief honour.”

In a Greek building every part did the work which it was supposed to do, and which it appeared to do. There was “no deception.” In a Roman building we are never sure. That is why Roman buildings lack the winning simplicity of the Greek. To be simple we must be truthful; when we set out to be “clever” we may easily fall into deceit. The Romans had a saying, *splendide mendax* (splendidly untruthful), and they illustrated it in their buildings.

Perhaps we are being a little severe on this building—though the tendency we have detected runs throughout Roman architecture—and to be fair to the Pantheon we must remem-

ber that the exterior brickwork was originally encased in marble. This doubtless made its outward aspect more imposing, but it would not make it more truthful even if it glossed over those lying arches. No material is bad in itself, and if a concrete building is allowed to *appear* as a concrete building, it may have the virtue of simplicity and a concomitant beauty of its own. But when it pretends to be something else, whether brick or marble, it may be handsome, but never beautiful.

In olden time, when the roof was covered with bronze-gilt tiles, the dome of the Pantheon must have been more magnificent in its appearance than it is to-day, but from without the effect of this great dome is lost because we are never allowed to see its true curve. The exterior is so banked up with abutment to resist spreading, that only a flattened segment is visible. Here the Romans made a curious and apparently unnecessary error. Had this dome been constructed of fitted masonry we could have understood why it was necessary to buttress it up to this extent, but since it is simply a concrete shell—in principle like the primitive

mud or clay domed-shell used to cover granaries —this rigid mass, which rests on the walls like a lid, exercises no lateral thrust which needs to be guarded against.

The truth seems to be that the Romans of the second and third centuries did not have the ideas about domes that we possess. We think of these hollow half-globes as a magnificent architectural feature added to increase the dignity of an exterior. The Romans appear hardly to have thought of the *outward* aspect of the dome. Here again we may see how the Pantheon differs from the idea of a Greek temple, for all the best thought of its builders was given to its interior.

To perceive the poetry of this rotunda we must go inside, for the Pantheon has a poetry of its own apart from all the historical romance associated with the great men who have found in it their last resting-place.

It has been said that the floor of the Pantheon is 140 feet across, but it is considerably more in places, because the internal wall is punctuated by a series of deep semicircular recesses alternating with shallower recesses and both

cut into the solid twenty-feet-thick wall. This device increases the area of the porphyry and marble floor even more apparently than it does actually, and with the dome gives the interior an appearance of impressive vastness. In the dome itself is seen the touch of genius which radiates the interior. It is "coffered," that is to say divided into five rows of deep panels, and at the top it has a single circular opening, thirty feet in diameter, and through this, the only window, light and rain alike fall upon the floor.

"There is a grandeur and a simplicity in the proportions of this great temple," wrote the architectural historian Fergusson, "that render it still one of the very finest and most sublime interiors in the world. It possesses, moreover, one other element of architectural sublimity in having a single window, and that placed high up in the building. I know of no other temples which possess this feature, except the great rock-cut Buddhist basilicas of India. That one great eye opening upon heaven is by far the noblest conception for lighting a building to be found in Europe."

There are only two kinds of buildings really, just as there are only two kinds of tents, round tents and tents which are rectangular; and just as the first great movement in architecture was made when man changed his round hovel into a square hut, so that the next great movement was heralded by man converting his oblong temple into a rotunda. The interior of the Pantheon moves us to-day by its monumental simplicity, because it is in truth a glorification of that primitive hut into which light entered by the same opening from which the smoke of the fire escaped. The Pantheon is the single cell *in excelsis*; it is the last word in execution on man's first idea of construction. It closed the era of Paganism with serene dignity, and even to-day it is a rival to its offspring, St. Peter's.

Yet though the Pantheon is in Rome and of Rome, we never think of it as a representative type of Roman architecture. We do not think first of any temple in connection with the Romans, because their temples were not their most characteristic products. Even those charming little temples of Vesta at Rome and

at Tivoli—each circular cells again, surrounded by a range of twenty Corinthian columns—seem to us more Greek than Roman, and in all probability they were both designed by Greek artists. If circular temples have this effect, still more do the oblong temples take us back to the gracious days of Hellas. The finest example of a Roman temple still extant is not in Italy but at Nîmes in the south of France. It is a charming thing—a dainty little Parthenon in miniature—but it is difficult to take it seriously. Known locally as the “Maison Carrée,” its name expresses something of its toy-like character. Prettily set up on a raised base and approached by a flight of steps, this temple, with its six columns back and front and nine at the sides, impresses us as the *biblot* of a Roman collector with classical tastes.

No, when the words Roman architecture are mentioned it is of other things we think, of amphitheatres, aqueducts, baths and triumphal arches. The Roman found himself in utilitarian not in devotional works.

Before considering one or two examples of these edifices, we must briefly examine one other

type of Roman building, utilitarian, though it came to be devotional. The *Basilica* was originally a large lofty hall which served the double purpose of a commercial exchange for Roman traders and a court of justice. None exists now in its entirety, but of the Basilica Ulpia, built by Trajan, enough remains in the Forum adjoining his Column to enable us to trace the ground plan of the structure. It appears to have been a great hall, 360 feet long by 180 feet wide, with a wide and lofty central nave, flanked by double aisle with lower roofs. This much we can deduce from the fragments of columns left. But the characteristic feature of the basilica is that at the end, opposite the entrance, was a semicircular recess or apse round which, upon a raised dais, were the seats for the magistrates. If we set the bench of the New Bailey at the far end of the Royal Exchange in London, we might get a very rough idea of what the Roman basilica was like. Why we ought to pay special attention to these basilicas is because the early Christians made use of them for places of worship, turning the raised dais where the magistrates sat into the platforms for

the preacher and the altar for the sacraments. The earliest Christian churches were built on the model of these basilicas, and therefore, while it is futile to speculate about the aspect of their exteriors, we must recognise that they play an important part in the history of architecture.

Nobody with any interest in Roman remains can travel very far without being tempted to visit the ruins of some Roman Baths, and from the number and dimensions of those which remain he might be inclined to think that one of the main characteristics of the Roman people was an extraordinary passion for ablutions. No greater mistake could be made than to regard Roman Baths as mere washhouses. They were not so much places for cleansing as places of entertainment, elaborate casinos fitted up with the luxuries of the most indulgent clubhouse. In addition to the public and private baths of all kinds, which formed only one of their many attractions, these vast structures included theatres, lecture-halls, libraries, gymnasias and other departments, and were built by one Emperor after another, each time on a

larger and more lavish scale, in order to increase his own popularity and to secure the vote and the favour of the people. The mass of ruins at Rome known as the Baths of Caracalla cover a site of nearly a quarter of a mile square. The Baths of Diocletian, also in ruins, were probably even larger, and its great hall, 340 feet long—which Michael Angelo restored, retaining the original columns and vaulting—is now the church of S. Maria degli Angeli.

Since the hot baths—what we call “Turkish baths”—were heated by kilns or ovens, and the hot-chambers required domes, it has been surmised that it was bath-building which introduced and popularised the use of the dome in Roman architecture. An interesting early solution of the problem of applying a dome to an octagonal chamber may be seen among the ruins of the Baths of Caracalla, where the transition is accomplished by making the angles of the octagon more and more blunt in each successive course, till at last it approximates to the circle. The inner structure of the baths and the manner in which the chambers were heated are very clearly to be seen in the still more imposing

ruins of the Baths of Constantine at Arles, while in the neighbouring city of Nîmes another aspect of the Roman Bath can be seen more pleasantly than anywhere else within the experience of the writer. At Nîmes these remains are situated in a park, and though only a few substructures still exist, we can see how the Romans entered their public swimming-bath, the colonnaded walks through which they strolled and conversed, and we can enter into the atmosphere of that cultured social life which must have been the great charm of these establishments.

Another outcome of the imperial desire to pander to the public—and to pander, we imagine, to the lower strata of society—was the arena or amphitheatre. For good or ill this has stamped itself upon the imagination of the world as the typical Roman monument. For the majority of people Rome means one of two things, either the Vatican or the Colosseum. Innumerable authorities have told us that the last is “one of the most imposing ruins of the world,” but apart from its mere bigness there is little in the building itself to hold us spell-

bound. The exterior, with its endless repetition of arches and functionless columns, is monotonous. The building itself is the usual Roman lie, it consists of concrete faced with stone; only a fragment of the outer wall remains to tell us that originally the outer circle was 180 feet high; the elliptical interior, 610 feet long and 510 feet wide, has also been wrecked by time and comparatively few remain of those rows of benches, rising in tiers, which once accommodated, we are told, 80,000 spectators. From every other point of view except that of mere size there are far more perfect examples of the Roman amphitheatre at Verona, at Nîmes and at Arles. From these we can gain a much better idea of the outside and inside of an amphitheatre than we can possibly do at Rome. We can see how the people got from the street to the inside, how they got to their seats, the different entrances for the different-priced seats, where the wild beasts were kept, how they were loosed into the arena, and how they were prevented from jumping among the spectators—all these and many other things we can readily see with our eyes

at Arles or Nîmes, whereas at Rome we can only see them in imagination.

If there are people who see poetry in the ruins of the Colosseum—and many do—they see it not in the building itself, but in its associations. They view the Colosseum with an imaginative eye and reflect on its past, and the emotion they feel springs not from the poetry of architecture but from the romance of history.

But it is not altogether the romance of history which, in the Forum, holds the tourist entranced before the arches of Titus, Severus and Constantine. All these have a genuine architectural interest and significance, and exhibit the merits as well as the defects of Roman building. Incidentally it may be mentioned that the sculptured reliefs on the Arch of Titus—commemorating the conquest of Jerusalem—are among the very highest artistic achievements of the Roman world, but though it would be congenial to dilate on them as pioneer examples of the principle of impressionism, they are details which do not properly come within the scope of this book. In its general

aspect that of Constantine is perhaps the most magnificent and imposing of these three triumphal arches. This also is adorned with wonderful sculptured reliefs and statues, calmly looted by the first Christian emperor from the monuments of his predecessors, and with all the richness of its detail and the solid majesty of its design it expresses appropriately the pride and magnificence of a man who had just crushed his only rival and saw himself Master of the World.

The Arch of Constantine is splendid, but it is not beautiful. Its beauty is marred by a redundancy of supports. What do we see when we look at it? We see, from left to right, first a column and then a small arch, next another column, a greater arch and a third column, finally another small arch to pair with the first and a fourth column. Above all this runs the main cornice, and over the cornice the upper storey known technically as the *attic*. Comes the question, what is supporting the weight of the cornice and the attic? The four columns, then why the arches? The arches, then why the columns? Of course the arches bear the

weight and the columns are superfluous. To give them some sort of excuse for being there the main cornice is made to project, and colossal statues of Dacian captives—commandeered from Trajan's forum—are placed one each on the top of each column. But we are not to be deceived. The columns are totally unnecessary and we know it. The structure may be magnificent or anything else you like, but there is no escaping the fact that it is *illogical*. What is illogical is never permanently pleasing, and Constantine's arch would have been no less triumphal but more truthful, and therefore more beautiful, had the columns been omitted from its design.

Anybody who is at all well acquainted with their sculpture would hesitate to assert, as some have done, that the Romans "possessed little artistic feeling," but in a great deal of their architecture they came to grief by their use of "added ornament." This was the result of a striving, not after Rightness, but after splendour and magnificence. It was an unconscious utterance of the pride and megalomania which characterised Imperial Rome. Hence their

habit of sticking on columns where they were not structurally needed—a vice from which modern architects are by no means free—and hence the comparative failure of their intentionally decorative works to move us very deeply.

If skill were art—which it is not—the Romans would have been a most artistic people, for their cleverness was inexhaustible, and in their complicated and ambitious structures they made use of every device and expedient known to building, so that it is said the most accomplished architect of to-day can do nothing more than re-arrange and re-combine Roman elements. There is nothing he can invent, so men say, because the Romans, unlike the Greeks, were not in the least tied by precedent, but were tireless in seeking out every conceivable variety of form and every imaginable combination.

These things being so, it is not surprising that the Romans should have achieved beauty only when they were thinking of something else. It is not in their decorated buildings, but in what many people consider to be engineer-

ing works that we find the real poetry of Roman architecture. When their minds were not occupied with trying to be splendid and magnificent, but when their whole attention was given to the utilitarian purpose of what they were constructing, when they strove to make it strong, enduring and right for use, then the Romans came nearest to the perfection of beauty." Far more impressive than any ruined palace or temple, more impressive than any triumphal arch or amphitheatre, are the bridges, the viaducts and aqueducts of Rome. Fergusson, notwithstanding his tribute to the Pantheon, was terribly severe on the arts of Rome, all of which, he said, "are characterised by the same vulgar grandeur which marks everything she did." We cannot agree with this verdict when we contemplate some of her utilitarian structures.

There is grandeur, indeed, but surely no vulgarity in the great aqueduct which spans the river Garde in the neighbourhood of Nîmes. This colossal structure which crosses the deep valley of the river in two great tiers of superimposed arches, one to carry the footway and

the higher to bear the water-trough, has the simplicity and honesty which betoken great craftsmanship and, further, possesses an expressiveness which makes it count as a work of art. For where better than at Pont-du-Garde can we receive a deeper impression of the Might of Rome? Here there are no accidental historical associations to make us sentimental, it is the thing itself, and the wonder of it and the rightness of it, that move our being to joyful admiration. Great indeed must have been the nation that raised so majestic a structure to bring fresh water to a provincial city.

Travellers who have journeyed afar tell us of the thrill they have experienced when unexpectedly, perhaps in the waste of a desert, they have suddenly recognised the remains of some monument of Rome, and it may be that the scattered fragments of her once universal power have a greater architectural significance than all the monuments in Rome. In lonely places, far more acutely than in the heart of the modern city, do we feel the full poetry of these relics of the past. Dare we say that a column in the desert is worth two in the Forum?

Surrounded by fields outside the sad city of Ravenna—the last forlorn hope of Imperial Rome—stands the forgotten Mausoleum of Theodoric, once “the Great” and all-powerful Emperor. Few who come to Ravenna take the trouble to go and see it, they study the incomparable mosaics in the Tomb of Galla Placidia, and they drive three miles out to see the great Basilica of Sant’ Apollinare in Classe Fuori, yet only half a mile out on the other side of the city is one of the most perfectly preserved tombs of a Roman Emperor. This ten-sided structure of two stories, surmounted by a round drum on which rests a shallow dome, lies sullenly in the landscape, not pretty, perhaps, but certainly not inexpressive. It has an obstinate, determined look, the heavy frown of a man determined not to budge—and heavy it is, for the flat dome, 36 feet across, is made of a single block of Istrian rock estimated to weigh 470 tons. This monument is eloquent of a Rome no longer advancing her frontiers, but hemmed round by dangerous foes, threatened but obstinate, contesting every inch. It is again a monument of force like other Roman monu-

ments, but the force is no longer dynamic, it is static.

As we leave Ravenna, the last thing we see is one of those tall round towers, now serving as companile to a church, but originally a lighthouse of the arsenal in the days when Ravenna was the Chatham and Portsmouth of the Roman Empire, a city more powerful politically than Rome herself. Its rectitude and straightness are welcome as reminders that, after all, there was some good in the Roman character.

Few writers on architecture have had anything kind to say about Rome. "Conquest, wealth and consequent power, were the objects of her ambitions; for these she sacrificed everything," said Fergusson. Roman works, according to Professor Lethaby, "stand for force, expansion, splendour; the art was official, self-satisfied, oppressive." We cannot contradict these authorities, yet even Rome possessed one redeeming virtue. She did possess Fortitude, a virtue embodied in the great Pharos of Alexandria, a virtue which still lights up that great round tower which stands, like a faithful sentinel, waiting for the sea to return to Ravenna.

Chapter V

The Age of Piety

UNHAPPILY for the world the age of strength did not end with the fall of Rome. On the contrary, it survived in an even worse form, and a civilised strength scientifically exercised was for long centuries superseded by a rude strength barbarously applied. The idea of Force dominated the Middle Ages, and never since has it entirely disappeared from the world or from architecture. It breaks out not only appropriately, as in that noble four-turreted castle (*c.* 1385) which is the glory of Ferrara, or in the still earlier Tower of London, but also most inappropriately in grim fortress-like cathedrals of which Notre Dame at Paris is a type.

We cannot, if we would, deny the beauty and wonder of the Cathedrals and churches of Western Europe. Great numbers of them must always be counted among the greatest archi-

tectural achievements of man, but if we are to be honest we have to admit that even the noblest of them more often express a triumph over problems of construction than the clear conviction of a simple faith. Pride, Splendour, Opulence, Romance, Energy, Aspiration—all these are variously expressed by the cathedrals of Europe, but how many are there which, when we see them, give us first and foremost an impression of Piety?

Alas, there never has been an age of piety, only rare moments of piety occurring here and there but soon passing away, and it must be confessed that the heading of this chapter is nothing more than a title of convenience to indicate a time of transition which followed the introduction of Christianity.

We are told that before Constantine made it the established religion of the Roman Empire, here and there in the East structures were built which did express the simple faith of the Early Christians. Of these primitive churches the most perfect example existing is said to be that of the Holy Nativity at Bethlehem, built in A.D. 327. This more or less follows the basilica

plan, only the transepts as well as the east end have apses; the nave has four rows of marble columns, and the exterior, of masonry, is severely plain and austere. "As structure, all is direct and simple," says Professor Lethaby; "as architectural expression it is serious and sweet. There is nothing in it which is unlike late Roman art except the total expression itself. It is the Roman alphabet in a Christian sentence."

In the following year (A. D. 328) Christianity was officially recognised by the Emperor Constantine—who with his usual astuteness saw in its episcopal system a valuable instrument of government—and henceforward we shall find churches constructed on lines which are anything but "plain and austere." The Christian Church which had begun as a simple meeting-house, based on the model of the basilica, gradually crept closer to the Pagan temple. In passing, let us remark that the basilica plan does not provide a very prepossessing exterior. A high barn with a lower lean-to on either side not inaptly describes the elements of its appearance. But from very early times there was an alternative to the basilica in the round

church—*e. g.*, Santa Costanza built at Rome about A. D. 354—and all these round churches derived from the Pantheon.

In Italy, however, the basilica was the favourite shape, and it is instructive to watch how it was gradually adapted to meet new needs. It will be remembered that the chief feature of the interior of the basilica was the semicircular recess or apse in the centre of the wall opposite the entrance. In this apse, where the Roman magistrates used to sit, the clergy now took their place, the Bishop occupying the centre seat of the Chief Magistrate. In front of this raised dais, where the clergy sat, was set up the altar at which they officiated. As the ritual became more elaborate and as the Bishop wished to increase his importance by swelling the number of his attendants and acolytes, the company became cramped at this part, and accordingly the building was slightly widened here in order to increase the accommodation. This was the strictly utilitarian origin of transepts. The idea of widening them still further so as to give the ground plan of the church the shape of a cross was a later inven-

tion. Since there was not room for the choristers and other ministers in the apse, space was reserved for them in a portion of the nave in front of the altar, and this space was enclosed by a railing or low marble balustrade. Here we have the origin of the Screen. For the rest, the division into a nave and two side-aisles was the same as in the Roman hall.

As the ritual grew more exclusive and elaborate and as the number of the clergy increased, the apse was gradually lengthened until it developed into the Choir: and later it became more convenient to place the altar against the wall of the apse, and to give the Bishop and clergy seats at the sides of the choir. But in some few churches of much later date the older arrangement was adhered to, and the visitor to Rome will have noticed that in St. Peter's the Pope's throne is situated in the centre of the apse, while the High Altar is placed in front of it under the centre of the Dome.

The pagan temples of Imperial Rome were not always exclusively devoted to one deity: at the Pantheon, for example, the seven deep recesses contained seven altars to seven different

deities. The next step in the development of the Christian Church was a similar multiplication of altars.

Nothing so much increased the sanctity of a church in popular esteem as the relics of the saint to whom it was dedicated. Originally the shrine containing his remains was placed under the High Altar in the apse, but as saints and relics became more numerous and as the belief in their efficacy waxed and increased, secondary altars became desirable. For these secondary altars additional apses were made on either side of the main apse, so that the eastern end of the church had three semicircular recesses; later two additional apses for further altars were made at either end of the rudimentary transepts, and when the multiplicity of saints made even this number of altars insufficient, an inventive genius hit upon the happy thought of ranging round the main apse—now extended into the choir—a series of smaller apsidal chapels. This ring of chapels, behind the choir, became the favourite design of French cathedrals.

It is difficult to form a just idea of the in-

terior of early Christian basilicas from the examples still standing at Rome. Santa Maria Maggiore is usually considered to be the best. This was originally a fifth-century church, built by Sixtus III, of which the nave with its ancient marble columns is still preserved. It has the characteristic long rectangular form with the usual apse, but the transepts and side-aisles have been so encrusted with much later side chapels, that the original simplicity of its effect is entirely lost. Another famous basilica, St. John Lateran, which, though almost dating from the days of Constantine, has been continually altered, and "modernised" and "restored," is now chiefly interesting as an example of the manner in which a job assortment of columns and capitals, taken from the older pagan temples, were indiscriminately put together to make a Christian church.

So far as Rome itself is concerned Ruskin was justified in saying: "The architect of a Romanesque basilica gathered his columns and capitals where he could find them, as an ant picks up sticks." Indeed, the romance attached to St. John Lateran is historical, not artistic,

and architecturally it expresses much the same sentiment, and in much the same way, as the Arch of Constantine. Barefaced robbery seems to have been a conspicuous architectural feature associated with the memory of the first Christian Emperor.

But this method of construction did not obtain everywhere, and there are basilicas to which Ruskin's words do not apply. Ravenna was not guilty of the vandalism displayed by Romans before the Vandals came, and since the Dark Ages the city has never been wealthy enough to spoil and degrade her ancient monuments. Consequently two of the best preserved early churches of the basilican type are at Ravenna, St. Apollinare Nuovo (A.D. 525) in the heart of the city, and St. Apollinare in Classe (A.D. 549), three miles out in what was formerly the port. Nothing could be more impressive than the bareness of these great interiors. As we look up the grand colonnaded nave of the latter, over the ancient marble altar in the centre, towards the splendid apse with its gilt mosaics, five arched windows and the bishop's throne below, we are overwhelmed

by the solemnity of its grand proportions. The vastness and the emptiness of it increase the effect, for there is nothing to distract our eyes from the structural lines of the whole. Even the two bands of mosaics, which surmount the arches of the nave, form so integral a part of the design that they do not misdirect but lead us like two golden threads to the steps of the Tribune.

It must have been in a God-fearing moment when this noble structure was raised to the memory of Apollinaris—St. Peter's friend—who suffered martyrdom at the hands of a mob just outside the gates of Classis, the once busy but now vanished port.

Externally this basilica, like others of the period, is as simple as possible with no attempt at embellishment. It is as plain as a modern factory, yet its quiet massiveness, the irregular regularity of its round-arched windows, and the huge round tower standing by its side give it a silent dignity that is unforgettable. Further, this unconcern at what the outside may be like ends by moving us deeply, for in a way it is the expression of a feeling that this build-

ing is far from worldly things and it is *within* it that we can enter into communion with God. It is the antithesis of a Greek temple, but it is not for that a worse expression of the Christian Faith.

That faith itself underwent as many changes between the fourth and tenth centuries as the churches themselves; indeed, the shapes of these buildings reflected the differences in the creeds. The Christian architecture, based upon the traditions of Rome and following in the main the buildings of the Empire, received the name of *Romanesque*. But Constantine had removed the seat of Empire from Rome to his new capital of Byzantium or Constantinople, and there another type of architecture, influenced by Eastern ideas, was evolved which is known as *Byzantine*. When the Churches of Rome and of Byzantium diverged upon questions affecting the ritual and the creed, this divergence showed itself in the different forms of Eastern and Western churches. Where the doctrines of the Greek Church were observed, the buildings were Byzantine; but where the people held to the tenets of the

Church of Rome, the Romanesque basilican form was adhered to, though with modifications brought about by an increasing desire for grandeur.

Even the symbol of the Cross was not the same in the two churches, for whereas the Greek Cross (+) had arms of equal length, the Latin Cross (†) had the perpendicular prolonged. If you build walls round a Latin Cross your ground plan takes the form of an oblong or irregular oval, which is the general shape of the Western churches; but if you put walls round a Greek Cross, your building inevitably tends to become square, octagonal or circular. To put it quite simply, we may say that the Greek church begins as a square, while the Romanesque church begins as a rectangular oblong. It seems natural to cover an oblong with a slanting wooden roof, but when our foundations are square or octagonal we are tempted to crown the structure with a circular dome. Thus the dome became the distinguishing feature of Byzantine architecture, and not one dome only but a group of domes surmounting a single structure. Here we may plainly see

the influence of the East, for domes had long been the favourite roofing in Egypt and Persia, and "the conception of a roof as a terrace through which groups of domes emerge from the interior seems to be entirely Oriental."

The Byzantine dome was usually carried on four round arches built on the sides of a square, and the triangular spaces at the corners, between the curves of the arches, were filled in with convex courses of masonry (known as *pendentives*) up to the top of the arches so as to form a continuous ring on which the dome rested. The leading characteristics of Byzantine architecture in its early and purest form may be splendidly seen in St. Vitale at Ravenna, begun in A. D. 526 and most probably designed by Anthemius, the great architect of the Emperor Justinian. The plan of this building is a central octagon formed by eight great marble piers, and this octagon is ingeniously converted into a circle by the following device: at each angle, directly above each of the piers, a deep niche is hollowed out so that the angles are eliminated, thus the upper walls, supported by the arches of the niches, take the form of a

circle. On this circle rests the dome constructed of terra-cotta vessels fitted together in spirals. Like the Pantheon, St. Vitale has seven apse-like recesses, each having a semicircular gallery supported by two beautiful columns, while the eighth recess is part of the deep choir, which includes among its decorations contemporary mosaic portraits of Justinian and Theodora. With its marble-covered walls, its columns and their capitals, and the glitter of its mosaics, the general effect of this interior is splendid and impressive, but while already we perceive in it that taste for brilliance and rich decoration which betrays the influence of the Orient, it has not yet been overdone so that its ornateness becomes oppressive and almost vulgar.

The capitals of these columns call for attention because they mark a very real difference between Roman and Byzantine architecture. It will be remembered that the Roman columns had little, if any, work to do, they were almost purely ornamental; consequently the Corinthian capital tended in Rome to become more and more concave, more and more deeply cut with delicate and projecting foliage. The

Byzantine column was an honest member of society, it had work to do, it had weight to support; consequently it had no use for the "idle-rich" capitals which were in vogue at Rome. It evolved therefore a sensible working capital of its own, the most characteristic form being that of an inverted and truncated pyramid, the apex of which was lost, so to speak, sunk in the centre of the column, while the base helped firmly to support the weight above. The sides of this capital, solidly convex that it might do its work the better, were not weakened by being deeply cut into, but were lightly sculptured with shallow reliefs, which provided a suitable surface decoration without impairing its structural efficiency.

Mosaics form so important and significant a feature of Byzantine interior decoration that it is impossible to ignore them, and indeed they are themselves so wondrously beautiful that one is tempted to linger on the subject. They were used not only as decorations, but as the frescoes were in later centuries, to declare to the multitude the story of the Bible and the triumphs and ecstasies of the Christian Faith.

When the mosaic, which had been extensively used in pagan times for pavement decoration, first crept up from the floor to the wall has not yet been definitely established, but though peculiarly associated with Byzantium, it was also a feature of early Christian decoration at Rome. A splendid example of a fourth-century Roman mosaic may be seen at St. Pudenziana at Rome, where the apse shows us the Saviour enthroned between the Apostles and two women, while behind rise the walls and towers of the New Jerusalem with Calvary and the Cross in the centre. The figures are splendidly drawn and their treatment is so naturalistic that we are at once reminded of the great painters of the Renaissance, though this scene was designed nearly a thousand years before the Italian Primitives came into being.

While the corrupting influences at Constantinople eventually hardened figures into stiff conventional forms so that mosaic became a restricted hieratic art, in its earlier days Byzantium does not appear to have been a foe to naturalism. Nothing could be sweeter in its unaffected simplicity and naturalism than the

mosaic lunette, in the Tomb of Galla Placidia at Ravenna, which shows Christ as the Good Shepherd, young and beardless, seated among his flock in a rocky landscape. The artist is not so skilled a draughtsman as the master of St. Pudenziana, but both the animals and the vegetation show a genuine observation of nature, and the spirit of the work seems to anticipate the ingenuous piety and nature study of Giotto.

It may be argued, of course, that this mosaic is more Roman than Byzantine in character, that the Byzantine style had not fully developed when Galla Placidia, sister of the Emperor Honorius, built herself this mausoleum probably after she had resigned the Regency in A. D. 440. But the tomb itself, a small cruciform domed building, approximates to the early Byzantine type, and the outstanding feature of the interior—one of the most moving and beautiful in Europe—is that it displays an exquisitely refined taste in colour unapproached by any interior at Rome or Constantinople.

When we enter this mausoleum, dimly lit

by small windows covered with orange alabaster slabs, we can at first see nothing, but as our eyes become accustomed to the gloom we find ourselves in a blue hall of surpassing beauty. What distinguishes these from all other mosaics is the reticent use of gilt. The background is a deep blue, and between the lunettes this blue ground is enlivened by small gilt stars and white double ellipses with alternate white and red centres, so that the whole has an extraordinarily soft, harmonious and rich effect. Signor Ricci has well likened it to "the flashing plumage of a humming-bird." There is nothing like it anywhere else, and the nearest approach to it is the Baptistery, also at Ravenna, where the central circular mosaic of "The Baptism of Christ" is surrounded by the twelve Apostles on a rich blue background. Since this is held to be only ten years later than the Galla Placidia mosaics, it is not inconceivable that the same artist was responsible for both designs.

Later, the tendency to overload the gilding somewhat marred the colour-effect of the mosaics and at times produced an unpleasing ap-

pearance of gaudiness; but if Constantinople as the new capital, revealed itself a *parvenu* in its ideas of interior decoration, Ravenna preserved something of that simplicity which may often be found in the provinces when it has deserted the metropolis. The great period of mosaic art, from the fourth to the ninth centuries, roughly corresponds to the classical age of Byzantine art, but its highest expression was at Ravenna, not Byzantium.

There is real poetry in the buildings of Ravenna. They seem to embody two hopes of the Dark Ages, the last forlorn hope of the Roman Empire, and the dawning hope of Christianity; and if they have now been shorn of that external splendour which once stood for the majesty of Rome, thanks to the mosaics—the most permanent form of mural decoration ever invented—the interiors still shine with a brilliance, undimmed by the centuries, which we may reverently associate with the Light of the World.

During the 500 years which elapsed between the building of St. Vitale at Ravenna and St. Mark's at Venice the original Byzantine type

lost all its simplicity, and the vaulted church with a single great dome developed into a "five-of-spades" in which four smaller cupolas were grouped around the central dome.

Although in 1065 the Romanesque style had become well established in northern Italy, the Venetians, with their characteristic conservatism, preferred the older style when in that year they determined to rebuild the church which had been burnt down in 976. Incidentally it may be mentioned that true Romanesque was not introduced into Venice till about 1150. Among the few examples of it to be found there are the Loredan and Farsetti palaces, those two noble arcaded structures with three tiers of rounded arches which, standing side by side on the Grand Canal, are stately embodiments of the senatorial dignity and worth.

The appearance of St. Mark's may suggest a number of things, but Piety is certainly not among them. Were we told that it was a mosque we should not be surprised, for its domes and pinnacles accord better with our ideas of Mahomedanism than with Christian-

ity. We know that it is all wrong, that it is over-decorated, over-elaborate, false and perilously near the gaudy, but it fascinates us all the same; and as we look across the great square at this huge, toad-like, squatting structure, all glittering in the sun, our good resolutions give way before the magic of its enchantment. It may be sinful—and it is not unlike a handsome overdressed vice—but it lures us irresistibly with the inexplicable romance and glamour of the East.

Beneath the weight of its jewellery the Greek Cross has been obliterated, yet a Greek Cross was its origin. If we look closely into its ground plan we shall see that the four limbs of the cross are nearly equal; on the outside, each limb has a dome over its centre, and in the middle, where the four limbs meet, is a fifth and greater dome. Who, to look at that long vestibule or portico which stretches right across the western front, a vaulted vestibule richly adorned within and without with marbles and mosaics, can associate it with a congregation of penitents, retained here because they were not allowed to enter the holy building? If this be

purgatory, we may ask, what is heaven? Yet this was the original purpose of the portico, a place for the unbaptised and for penitents to assemble.

St. Marks may be "the richest and most enchanting of all extant Byzantine edifices," but it will not do to think of it in connection with the Christian Faith. When we do so its splendours within and without, its coloured marbles and gilt mosaics, are appalling: for then it illustrates nothing so well as the parable of the tares which have sprung up and choked the wheat.

Ruskin, with his passion for detail, never saw St. Mark's; he never saw the church, only an agglomeration of lovely ornaments which seduced his philosophy. Quite unconsciously he damned the building in "The Stones of Venice" when he wrote: "The effects of St. Mark's depend not only upon the most delicate sculpture in every part, but eminently on its colour also, and that the most subtle, variable, inexpressible colour in the world—the colour of glass, of transparent alabaster, of polished marble, and lustrous gold." But all these are

details of craftsmanship, it may well be a miracle of craftsmanship, as "lovely as sin"; but it is not strictly speaking a great work of art for it does not enshrine one generous, unselfish feeling or attain unity in the expression of a single noble idea.

No centuries during the Dark Ages were so dark as the ninth and tenth, and apart from Venice—which always went her own independent way—there was hardly any building of importance erected in Italy, or in Western Europe, during this period. This cessation of building was due not so much to the deplorably chaotic condition of Europe, swept by a tide of barbarian invasions, as to a firmly-held conviction among the Christian peoples that the world would come to an end in the year 1000. As that dreaded year approached there was little disposition to set about erecting structures which the impending Day of Judgment would render superfluous, but when 1001 came and passed and still the "Millennium" had not arrived, gradually normal conditions were restored and the business of building proceeded as usual.

Accordingly there was a gap of nearly two centuries between the last of the basilicas already described and the later Romanesque churches which are now to be considered. Although this later Romanesque architecture subsequently developed into two distinct styles, the general principle of the ground plan was the same as that of the earlier Romanesque, namely, that of a Latin Cross basilica, with a porch on the western front, with one or more aisles on either side of the nave, with a choir and sometimes apsidal or other side-chapels.

A good example of the early Lombard style is the old church of St. Zeno at Verona, built between 1070 and 1140. A noticeable feature is the rose-window over the projecting porch and under the centre of the gable. Otherwise the façade maintains the earlier simplicity, though its severity is now softened horizontally by two series of arcades, one over the rose-window and one on either side of the upper part of the porch, and perpendicularly by long slender pilasters dividing the front into three parts and thus suggesting the nave-and-aisle division of the interior.

The columns of the porch rest on the backs of two crouching lions of red marble, and this ornamental detail is a distinctive characteristic of the development of Romanesque architecture known as the Lombard style. Tennyson noted this peculiarity in his lines—

“Stern and sad (so rare the smiles
Of sunlight) look’d the Lombard piles;
Porch-pillars on the lion resting,
And sombre, old, colonnaded aisles.”

We may assume that unfavourable weather, as the lines suggest, was the reason why these Lombard churches seemed “stern” to Tennyson, for, when the sun shines, the lightly projecting arcades give a gentle variety of light and shade to the western front; but in all weathers they do look a little sad. The one joyful note at St. Zeno is the tall square bell-tower or campanile, detached from the church, which rises beyond the south-east corner. It is simple, beautifully proportioned and rises to a great height above the roof of the basilica.

This, at St. Zeno, is a flat timber roof supported by alternate piers and columns, but a

new feature in later Romanesque churches is the substitution of a vault for the flat or open timber roof. This introduction of a massive vaulted roof necessitated changes in the interior, and accompanying it we find sturdy piers taking the place of graceful columns and a tendency to reduce the width of the nave. One of the earliest and most famous examples of this change is St. Ambrogio at Milan, where the ribbed-vaulting of the interior (*c.* 1140) almost anticipates the leading feature of the Gothic style.

This feature is so important in proving that the "Gothic" was not a new, foreign and distinct style, but merely the logical outcome of Romanesque architecture, that a digression on this technical and structural point may be pardoned. Early vaulting, like the half-hoops of a barrel and so known as "barrel-vaulting," was in later times broken up into square bays each covered by an "intersecting vault," that is to say the crossing of two half-hoops at right angles. Where these two half-hoops joined, protruding groins were created; and these groins were converted by masonry into two

diagonal arches or ribs, thus forming the "ribbed" vault. All the developments of ribbed-vaulting cannot here be enumerated, but one use of it, which can be traced in *French Romanesque*, was destined to revolutionise architecture; for when the aisle was only *half* covered by the barrel-vault and the other half of the arch was allowed to project beyond the building and rest on a detached pier outside, then the way was prepared for the "flying-buttress."

Generally speaking, however, these experiments in vaulting were not attended with much success in northern Italy, and so many of the eleventh-century churches in which they were attempted collapsed, that most of the surviving Romanesque buildings have less ambitious roofs than that of St. Ambrogio. Though distinguished by another name, the Tuscan Romanesque is not unlike the Lombard except that the designs are lighter and more elegant. The finest group of early Tuscan buildings standing is at Pisa, and consists of the Cathedral (or Duomo), the Baptistery and the famous Leaning Tower.

The visitor to Pisa to-day finds it difficult to

realise that this sleepy little town was once a great maritime power whose wealth and conquests rivalled those of Genoa and Venice. Of all its former magnificence only this one group of buildings remains, and so shrunken is its territory that the piazza on which they stand is on the outskirts of the modern town. But this group is unique, there is nothing like it in the world, and it tells its own story with pathetic dignity.

We may imagine that the great Duomo, begun in 1006, was completed not so much to the glory of God as to the glory of the Pisans, who had defeated the Saracens and captured Sardinia in 1063. They had done their duty as Christians by ousting the infidels from a fertile and profitable island, and they permitted themselves a jubilation in stone. Of this elation after victory the Duomo is a triumphant expression. More than three hundred feet long and crowned by an elliptical dome, it is built mainly of black and white marble; its outstanding feature is the western façade adorned with four tiers of beautifully proportioned open arcades resting on seven arches, of

which the second, fourth and sixth contain doors admitting to the cathedral. This arrangement of wall-arcades and galleries is the distinctive feature of Pisan architecture, and though when unintelligently employed it tends to become monotonous, on the front of the Duomo the treatment of the different tiers is so varied and skilful that the effect is eminently decorative and pleasing. It pleases us by the child-like candour of its vanity, it does not swagger but just pleads for its cleverness to be noted. All the world loves a juggler, and the balancing of these columns on columns is done so neatly and dexterously that we cannot help contributing our round of applause.

The interior with its great nave, flanked by sixty-eight marble columns, and flat, coffered roof, is grand and handsome, but has not the same individuality. Not architecturally perhaps, but materially it is also eloquent of history, for these grand columns are mostly spoils of war, fragments of Greek and Roman temples looted by Pisan seamen in the course of their victorious descents upon Sicily, North Africa and the Balearic Isles.

The Leaning Tower is said to be slightly later in date than the Duomo, and reason revolts at the idea that it could possibly have been completed under the direction of the artist responsible for the façade of the cathedral. The Tower—not square, like most of the later Romanesque campaniles, but round—shows an unintelligent application of the idea of the façade. It is adorned with tier upon tier of open arcades, but since these arcades are all of equal height from base to summit, their constant repetition becomes wearisome in the extreme. But for the angle at which it slants—due to a subsidence of the soil on one side—no person of taste would look at it twice, and we can thoroughly sympathise with Ruskin when he described it as “the one thoroughly ugly tower in Italy.” Yet to-day the tower is not wholly inexpressive; kindly nature has done her best to repair the stupidity of the builder, and in the angle of the Leaning Tower we see a sign and a portent, a symbol of the decline and fall of the Pisan Empire.

No phase of architecture better repays study than that known by the name of Romanesque;

within itself it contains all the fruits of the past and all the seeds of the future. Even the basilica itself is a dim memory of the Greek temple, shorn of its surrounding columns and marred by the addition of the "lean-to" sides which enclose the aisles.

Not only throughout Italy, but throughout all Western Europe we find examples of the Romanesque style, similar in their *general* principles, but modified by the different social conditions which existed in other cities and other countries. The lovely city of Florence, once filled with Romanesque buildings, has few of these structures left, but one celebrated church, St. Miniato, which, high up on the other side of the Arno, still "dominates the city," as it did in the days of Dante, is a perfect and instructive specimen. Its western front, all gay with different-coloured marbles, reminds us how desperately anxious were the jealous Florentines to avoid introducing into their buildings features which might be reminiscent of the architecture of the rival cities of Pisa and Lombardy. The Florentine taste for coloured marbles as a surface decoration is still more bril-

liantly exemplified in the red-and-white-and-black façade of the Duomo, which, though rebuilt in the later days of Gothic architecture, has something Romanesque, something almost Byzantine in its aspect. Indeed, we may surmise that Florentine Romanesque was influenced by the number of Greek artists from Byzantium which Florence, in her early days, is known to have employed; but in her lighter, more invigorating air these Byzantine elements lost their Eastern languor and heaviness and took upon themselves a new quality of elegance and energy.

In every country Romanesque architecture tells its own local story while re-emphasising the universality of Rome. Thus in Spain, as the Asturian kings gradually drove back the Moors, there arose Christian churches in which the Romanesque pattern was modified by features borrowed from Moorish architecture—which itself may be considered an offshoot of Byzantine art modified by Persian, Indian and even Chinese influences. The great contribution of the Saracens to European architecture was the introduction of intricate geometrical

patterns—due to the law of the Koran which forbade the exact reproduction of any living creature; hence the employment for interior decoration of texts in the flowing Arabic script which, modified again, reappeared in Christian art as “Arabesque.”

In France Romanesque buildings show a remarkable variety due to the different influences at work in her many provinces. In Provence, where to this day the Roman remains are so numerous and so impressive, the Roman element not so unnaturally predominates. In their general aspect Provençal churches approximate to the Lombard style, which is sometimes recalled even by a détail, as in the beautifully proportioned and dignified St. Trophime at Arles. As we look at its richly sculptured porch we observe that some of the columns, which bound the niches for the statues, rest on the backs of crouching animals which may possibly be meant for lions.

The general tendency in France to make an increasing use of sculpture to enrich the decoration of façades is still more visible in the Romanesque churches of Poitou. Notre Dame

la Grande at Poitiers is famous for its high reliefs and statues, and the age of chivalry is foreshadowed by Poitou's delight in equestrian statues. In the hilly district of Auvergne, where the land, more difficult to till, produces a hardier and more vigorous race, we find a corresponding vigour in the architecture; churches are built of grey granite, and lofty octagonal towers, of many stories, are eloquent of industry and determination. As we journey northwards massiveness and simplicity replace the sculptured decorativeness of southern façades, till at Caen we are confronted by the solid block of St. Trinité, which, with its two formidable square towers on either side of the wide round-arched portal, looks more like the fortress of a robber-baron than an abbey church for the use of nuns.

The audacity of the Normans is shown in their daring use of vaulting before its principles were thoroughly understood, and in several instances their vaulting ambition o'erleaped itself, and the wide naves and aisles they designed could not safely be covered with stone—as they intended—till the coming of a later

and more scientific age. In the companion church of St. Etienne, the Abbaye-aux-Hommes, built by William the Conqueror to commemorate his victory at Hastings, the unbounded energy and exhilaration of the Normans find vent in an orgy of vaulting which the building itself cannot contain; to keep it from falling to pieces the "flying-buttress" simply had to be invented, and here we find it preceding the introduction of the pointed arch.

From the above the reader will already have deduced that those styles of architecture which we denote in England by the terms "Saxon" and "Norman" are only further varieties of the Romanesque. Of Saxon architecture hardly enough remains for us to be positive as to its character, but it does not appear to have been very skilful technically. The walls are high but weak, the naves and aisles narrow, doors and windows small and scanty. These are not prepossessing characteristics, and they seem to suggest, not only unskilfulness, but even a hint of degeneration. Perhaps it is as well that the large Saxon buildings have disappeared, for unless they were different from what we sup-

pose the weakness of the style is better concealed by a small structure. The little church at Bradford-on-Avon is generally held to be the best surviving example of Saxon architecture, and this is certainly not without a charm of its own. Indeed, it suggests the thought that Saxon churches, if less impressive, may very possibly have been more pious in their aspect than the stronger edifices of the Normans.

In England, as elsewhere in Western Christendom, the approach of the year 1000 was doubtless regarded with dread, and the check on building thus exercised may in part account for the few Saxon structures which exist; but when the Normans arrived they soon made up for lost time, and it has been estimated that within these shores no less than 7,000 churches were erected during the century following the Conquest. It would be extravagant to see in this prodigious activity evidence of the extreme piety of the Normans, though it may well have been related to piety in the way of returning thanks for favours received; but we suspect that it was still more the result of a deep-laid scheme to keep the people quiet by giving them

plenty of work and by turning their thoughts to religion rather than politics.

Indeed, apart from the almost engineering qualities which we have noted at Caen—qualities which speak more of audacious energy than of religious aspiration—Norman architecture does not exhibit any very deep spiritual feeling. The churches, like the castles, are all on the physical plane, and the material attributes of Norman building have been well summed up in the lines—

“Massive arches, broad and round
On ponderous columns, short and low.”

In England, as in France, there was generally the intention to vault over aisles and nave—an intention betrayed by the massive piers and “ponderous columns”—but this was an ambition unfulfilled for many years, and Durham, Gloucester, and other Norman cathedrals originally had flat, low-pitched wooden roofs. The still extant wooden ceiling at Ely is possibly the Norman original, though the grand massive piers of the nave suggest that it was intended

to be vaulted. For high seriousness and solemnity of aspect few English interiors surpass the Norman nave at Ely.

Certain idiosyncrasies, however, showed themselves in the English cathedrals, and some of these variations are very difficult to explain. Adhering to the Romanesque type, they were naturally built on the ground plan of the Latin Cross, but where the typical Norman cathedral, like Durham or Peterborough, differs from its Continental prototype is in the length, which is longer in proportion to its width. The Normans certainly liked long swords, and we must presume that they also preferred long crosses. This suggestion may appear fantastic, but it will not appear so to those who know that the sword, throughout the Middle Ages, served as an emblem of the Cross.

Another characteristic, also with military associations, is the tower. The great square-topped, battlemented towers, flanking each side of the western porch, and a still greater "lantern tower" over the centre of the transepts—*i. e.*, where nave and transepts cross—and sometimes smaller towers at each end of the

transept, are conspicuous features of the Anglo-Norman style. Durham possesses perhaps the most splendid example of this towered design, and putting prejudice aside we must admit that its aspect is that, not of a church, but of a castle. It is indeed a splendid castle of the Faith, and that is what most English churches are, for this feature has survived the Norman period, and a sturdy square tower is as typical of an English church as the dome is of Byzantine architecture.

An English innovation much more difficult to account for is the substitution of a *square* east end for the semicircular or octagonal apse usual in the Romanesque churches of the Continent. From the remains of the church built by Edward the Confessor on the site of Westminster Abbey, we know that this Saxon church had apses, so the quadrangular form is unlikely to have been a native feature adopted by the Normans. On the other hand, one hesitates to describe it as a purely Norman feature, because Norwich Cathedral, begun about 1096 and generally considered the most perfectly preserved specimen of Anglo-Norman architecture, has

an apsidal east end. Indeed, it is certain that it originally had three apses, quite in accordance with the plan of the early Continental basilicas. Since this quadrangular termination to the choir and church, which makes its first appearance in Norman times, is also retained in the later Gothic churches of this country, we may reasonably hold it to be a purely *English* feature. While unable to account for it satisfactorily, we feel that it must be significant and have some subtle relation to a trait in our national character. May one hazard a guess that it unconsciously reflects the bluntness in the English character, a national dislike to circumlocution and a preference for a "square deal"?

Summarily and inadequately, it is true, we have now ransacked five centuries and glanced at the better part of Europe in the endeavour to find among the churches of the New Faith some buildings expressive of Piety. We have not been very successful. Possibly we might have met with greater reward if, ignoring precedent and custom, we had not searched among the famous edifices of great cities but had directed our attention to the humbler and less

known parish churches. Great towns rarely breed spiritual thoughts, and if our desire is to see, not wonderful edifices which triumphantly solve problems of construction and deck themselves out with all the varied ornamentation which cunning craftsmen can devise, but sweet, homely buildings made for worship and carrying on their face the simplicity and honesty of their purpose, then we may be wise to turn our backs on historic cities and go out into those rural districts where, as Kipling has so beautifully put it,

“Little lost down churches
Praise the Lord who made the hills.”

Chapter VI

The Age of Aspiration

WHAT is Gothic architecture? "Gothic" is merely a term of contempt applied by classical enthusiasts in the seventeenth century to a non-classical style which *they* regarded as barbarous and therefore only worthy of "the Goth," the typical barbarian. Consequently though the name has stuck, and is still used by people who revere that for which it stands as anything but barbarous, the style it denotes is neither racial nor national; it denotes a development of Romanesque architecture brought about chiefly by a new method of roofing.

Just as the Gothic style is characterised internally by its use of a new invention, so externally it is expressive of what was above all an age of discovery and invention, an age during which the whole mental outlook of Europe was changed by the invention of printing, the

astronomical theories of Copernicus and Galileo, and finally by the discovery of America. Printing aided the Reformation, Galileo gave birth to modern science, and Columbus, in more senses than one, opened the door to a new world. It was an age in which man's achievements were nicely balanced by the wonder they created, in which so much had been accomplished that all things seemed possible; and as men's thoughts went soaring upwards, so also did the spires.

These spires—the manifestation of power and pride—appeal to the popular imagination as do the Pyramids and the Obelisks, and for much the same reason; but they are not the essential feature of Gothic architecture, they are only a by-product. Again, though the pointed arch is so characteristic of this new architecture that its alternative name is the “pointed style,” this also is a result and not a cause of the new principle in Gothic architecture. The pointed arch was not a wonderful new discovery of the twelfth century. Rudely pointed arches of great antiquity have been found in Egypt; they were known to the Romans, and

an arched gateway of Herod's time exists in Palestine; Byzantine builders frequently used the pointed arch, and it was so commonly used by the Arabs that it is one of the characteristics of their architecture. Familiarity with Saracenic buildings, one of the results of the Crusades, may have helped to popularise the pointed arch in Europe; but its widespread use was due far more to a structural utility which will shortly be described.

Though our primary concern is with effects, we must now probe into a cause, for in Gothic architecture cause and effect are so closely knitted together that we cannot rightly appreciate the latter without some understanding of the former. Some stress was laid in the last chapter on the difficulties which roofing presented to the Romanesque architects, and we saw that although some experiments in ribbed-vaulting were attempted, the vaulting could rarely be made strong enough to support a great weight, and so in the end the builders had to fall back on a wooden roof. These wooden roofs were felt to be unsatisfactory, and were actually dangerous, for they led to the destruc-

tion by fire of innumerable Romanesque buildings. Obviously the only alternative was stone vaulting, but what sort of vaulting could be made strong enough to support masonry safely and yet not so cumbersome as to be unsightly in the interior? This was the problem the Gothic architects solved.

The nature of an arch has been very happily illustrated by Professor Lethaby. "If," says he, "you bend a piece of cane into an arch between two piles of books, the books have to be heavy enough or they will be pushed asunder by the elastic bow." This tendency to push the books away is what is known as the *lateral thrust*. "An arch is perfectly safe, and, indeed, inactive, as long as it is imprisoned, but let the restraining forces be an ounce too little and it will break out like water through too weak a dam, and a moving arch is as terrible as a flood." The problem, therefore, resolved itself into this: how could the arch be so imprisoned as to be inactive? The Romans, of course, had dodged the problem, for their solid concrete "lids" exerted no lateral thrust upon the walls beneath them, but their ponderous methods did

not commend themselves to later generations. The Romanesque builders made an honest frontal attack on the arch by "piling up the books" on either side, yet even when they had made the imprisoning walls exceedingly massive and strong, they sometimes miscalculated and the building came toppling down; and when they succeeded it was only by a sacrifice, namely, by narrowing the width or span of the vaulted spaces. Since the desire was for even wider, not narrower naves and aisles, this restriction was eminently unsatisfactory.

Then one day some unknown genius had the bright and happy idea of abandoning the frontal and attempting a flank attack. On the principle of "set a thief to catch a thief" he conceived the notion of making arches imprison one another, of setting them up so that each might fight against the lateral thrust exerted by the other. Thus was Gothic architecture born, and thus it became possible with safety to balance the ends of two, four, eight or more arches on one slender pier. This brilliant device was put into operation by means of the ribbed-vaulting described in the last chapter,

the intersecting ribs being converted into actual arches which, resting on piers, became the main structural support. One thing more was needed to complete the scheme, and a hint of this had already been given at Caen.

Since by this use of ribbed-vaulting the working part of the structure was a skeleton-framework, it only became necessary to concentrate weight and pressure on those isolated points from which the ribs sprang. In addition to strengthening the walls at these points it was found necessary to lighten the lateral pressure on them by transmitting it to oblique "flying" bridges or arches—often of great length—which sloped down to strong vertical buttresses at some distance from the external wall of the building. Hence arose those flying-buttresses which we see, for example, on the north and south sides of Notre Dame at Paris, slender, elegant and graceful, yet together more formidable in their strength than the mighty towers of the western front. The flying-buttress is the "lightning-conductor" of the lateral thrust.

These were the new inventions, or new ap-

plications of old inventions, which revolutionised architecture between 1150 and 1550, for this approximates roughly to the Gothic period. They not only changed the appearance of buildings, but they altogether changed their character. A living force now animated structures which hitherto had been kept together by their dead weight. Whether we consider the architecture of Egypt, Greece, Rome, Byzantium or Early Europe, all the buildings have this one characteristic in common: they are inert. They consist of lifeless enclosing walls, sometimes pierced to admit light, on which a roof rests quietly like a lid. All this lifelessness disappears in a Gothic structure, which is kept together by its energy; its stonework is functional, and all its ribs and arches and columns are "at bowstring tension." As Professor Lethaby has said, "we may think of a cathedral as so 'high-strung' that if struck it would give a musical note": and a mason can tap a pillar so as to make its stress audible. In a word, the Gothic style substituted a dynamic for a static architecture.

From this new conception of building all

sorts of interesting consequences followed. Now that the main walls of the building were relieved from the strain of the lateral thrust by flying-buttresses, the spaces between the internal isolated points of support were of no greater structural importance than the silk which covers the ribs of an umbrella; they could be made of quite light material and almost replaced by vast windows of stained glass. Thus, as it has been well said, a cathedral became "a stone cage with films of stained-glass suspended in the void, a marvellous jewelled lantern."

Another by-product of this system was that it enabled the roof of the interior to be raised to heights hitherto unattainable. The piers of the nave were now composed of clusters of slim shafts soaring to 100 or 150 feet before they flowed into the intersecting ribs (or ogives) of the vaulting.

Though too functional to be described accurately also as a by-product, the pointed arch was an almost inevitable corollary to the new method of construction. With intersecting round arches it was only possible to vault a

square base: no Gothic architect could submit to this restriction, and it was quickly discovered that with varieties of pointed arches all kinds of rectangular and other bases could be easily vaulted.

Compared with this vital conception of a building as a warring framework of contending lateral thrusts, all the other characteristics of Gothic architecture are mere details, and often details which have far more to do with ornament than with construction; yet since some of the ornamentation influenced the construction and so brought about marked changes in the interior—though not much in the exterior—it may be well briefly to consider these side issues.

“Far more important than the introduction of the pointed arch,” says Fergusson, “was the invention of painted glass, which is really the important formative principle of Gothic architecture; so much so, that there would be more meaning in the name if it were called the *painted-glass style* instead of the pointed-arch style. . . . We must bear in mind that all windows in all churches erected after the middle

of the twelfth century were filled, or were intended to be filled, with painted glass, and that the principal and guiding motive in all the changes subsequently introduced into the architecture of the age was to obtain the greatest possible space and the best localities for its display." From the latter part of this statement we have no wish to dissent, but we must also bear in mind that it was the flying-but-tress that cleared the way and made these windows possible.

Now in order that these pictures of painted glass should be held together in vast windows, it was necessary that the area within the frame should be divided up into a number of smaller spaces. Hence *Tracery* came into being, another skeleton framework, this time to hold the painted glass together.

Originating in a useful purpose this interior framework within the window became a distinctive decorative feature of Gothic architecture. Designers paid special attention to it, and beginning simply as divisions in the long narrow windows known as "lancets," it passed through various phases, setting a fashion and

giving a name to the period, and finally degenerating into florid elaboration. Since the character of the pattern of the tracery is the easiest means of identifying the date of a Gothic structure, historians have seized upon it as a basis for classification. As usually happens the classification is not exact, but since it is almost universally adopted and is roughly serviceable, the historic periods of English Gothic are set out below together with a description of the characteristic windows of each period—

Early English (c. thirteenth century).

—Long, narrow, lancet-headed windows.

Decorated (c. fourteenth century).—

Windows wider and more important; divided by mullions, the upper part filled in with (first) geometrical or (later) elaborate flowing tracery.

Perpendicular (fifteenth century and later).—Still larger windows with numerous mullions, and with *vertical tracery carried through to the top of the arch*, often intersected by horizontal beams (transoms).

In France, where elaborate tracery came into vogue rather earlier than in England, the periods are a little different. The Early Period dates from *c.* 1160 to 1270; the Middle, equivalent to our Decorated, from 1270 to 1370; the Florid (or Flamboyant) from 1370 to 1550. The name of the last explains itself, and it will be noticed that the perpendicular tracery, like the square east end, is a peculiarity of England.

Now that we have briefly surveyed the elements of Gothic architecture, let us proceed to examine some individual examples. Where Gothic architecture first began is still a moot point, and one which probably will never be decided. While it is generally held to have originated in France, we remember with pride that the earliest known specimen of the free-ribbed vault is at Durham Cathedral. It can hardly be contested that the Normans, more than any other builders of the Romanesque, showed the way towards the new style, but unless future research reveals the name and nationality of the man who first had the idea of "setting an arch to catch an arch," we shall act

wisely in regarding Gothic architecture, not as the invention of one man or one nation, but as "the outcome of ages of experiment."

How the Romanesque gradually merged into the Gothic can be seen in the transitional churches of Northern France; in Noyon Cathedral (*c.* 1130), for example, where both round and pointed arches are used, but no flying-buttresses. The lovely cathedral of Chartres was begun about 1150, but all except the façade was destroyed in 1194; between that date and 1260, when it was consecrated by St. Louis, it was rebuilt in the early Gothic style. Like nearly every other cathedral in the world, therefore, Chartres is a mixture of styles, but while the interior is typically Gothic in its appearance, the Romanesque element seems to predominate in the exterior when viewed from the west. Hence, perhaps, its unique character. The old couplet,

"Clocher de Chartres, nef d'Amiens,
Chœur de Beauvais, portail de Rheims,"

popularly sums up the general opinion as to
[163]

what are the outstanding features of France's four noblest cathedrals.

The poet did right to put Chartres first, for surely of all the cathedrals in the world it is the most irresistible in its poetic appeal. This appeal begins with the western façade. The Romanesque square towers, which flank either side of the triple-arched portal surmounted by a great rose-window and an open arcade, are relieved of their military character by the spires added later. Consequently Chartres has nothing of the fortress-appearance which characterises so many cathedrals. These two spires are curiously winning in their diversity, that on the southern side being a plain high steeple, while the northern is a richly decorated belfry with tiers of open arches. The southern spire gives a note of simplicity to the whole building and emphasises by contrast the beauty of the belfry. Coupled with the simplicity of the masonry on the western front, these spires give the exterior an indescribable dignity and grace. The front has just enough ornamentation, but not too much; and its incomparable modesty and sweet seriousness make it the most moving

expression of Christian piety. No building in the world enshrines in its aspect so much of the teaching of St. Francis of Assisi, whose beautiful message was indeed changing the heart of Europe while Chartres Cathedral was in course of construction.

During the fourteenth and fifteenth centuries over 1800 statues were added to the exterior of Chartres, yet even this wealth of sculpture has not affected the simplicity of the building. We may approach closely to this western front without experiencing any change of feeling, for the severity of the pillar-like statues only emphasises the high seriousness of the architecture. The wonderful sculpture of the portals is perhaps Romanesque work, or is at least Romanesque in style, and continues the dignity which characterises Chartres throughout. These portals usually show a relief of the Last Judgment, but often the sculptors, in their desire to terrorise the wicked by grotesque horrors, end in producing figures which to us are amusing rather than edifying or impressive. There are no contortions or grimaces in the figures which make up the symmetrical composition of the

Last Judgment at Chartres; they are vigorous but dignified, and they are subordinated to the artist's determination to reveal the majesty of divine justice in the person of Christ as supreme Judge. Another relief, showing Christ among animals, which represents the four Evangelists, is remarkable for the almost Pheidian dignity of the central figure.

When we pass through these sculptured portals and take our stand in the interior, our entrancement in the beauty of pure form is replaced by an overwhelming sense of the enchantment of colour. We feel that we have entered—not a “cage,” for we have not the slightest feeling of confinement, but—a spacious casket of precious jewels. What all this colour signifies we neither know nor care, we are too insensible of form to put it together into pictures which have a meaning and purpose; it is colour itself, pure and undefiled, that holds us, and fascinated by the play of a myriad hues, sparkling, softly brilliant, tender, grave and joyous, we give ourselves up unquestioningly to the happiness inspired by its radiance. If, while we gaze, the sonorous organ murmurs

and swells its volume of sound as chanting approaches, if our nostrils are sensible of a far-off cloud of incense, and we perceive a stately procession with dignitaries richly habited in scarlet silk, old lace and cloth-of-gold slowly wending its way through the great stone avenues, then we begin to realise the old purpose of a Gothic cathedral and to apprehend that all this surpassing beauty around us is only the setting for scenes of sensuous ritual which aspire to foreshadow the joys which the faithful shall experience within the very gates of heaven.

But whatever may catch our eye in the interior—and there is much that it can dwell on with delight—sooner or later our gaze will return to those magnificent windows—

“Each the bright gift of some mechanic guild,
Who loved their city, and thought gold well spent
To make her beautiful with piety.”

That no doubt is true enough, the townsmen must have contributed to the beauty of Chartres, but their contributions were made so tactfully that we do not think of the citizens. Un-

like so many other cathedrals in France and elsewhere, Chartres does not primarily impress us as a monument of civic pride; its aspect, and especially that of its exterior, is one that we more readily associate with monastic piety.

That Gothic architecture had its defeats as well as its victories is well illustrated by the history of Beauvais Cathedral. The French poet, we may recall, fastened on the choir as its outstanding feature and indeed its loftiness compels attention. When we stand in the Norman nave at Ely this looks vast and lofty, yet its height is less than 75 feet. That of Beauvais is more than double this; from the pavement to the top of the vaulting measures 160 feet! This scaling of heaven was not lightly achieved. The cathedral was begun about 1225 in competition with that of Amiens, which had been started five years earlier, and in their determination to out-soar their neighbour the men of Beauvais forced up the height of the building to the extreme limit of daring. But the arches were not imprisoned strongly enough, and in a few years the slender pillars collapsed, and the choir fell in. Undismayed

by this disaster, the citizens set about rebuilding the structure, and this time, in addition to giving the choir double-pillars for its support, they threw out a multitude of long flying-bridges which rested on gigantic buttresses without the walls. Thus persistence triumphed over gravity and the lateral thrust, and a tall, frail-looking choir was held together by the arrested strength of imprisoned energy.

Still Beauvais was unsatisfied. It was determined to get nearer to heaven than any of its neighbours, and in the fifteenth century a spire 486 feet high was added. But again some incalculable factor was forgotten; the spire fell to the ground and Beauvais Cathedral is still unfinished.

Notre Dame, the fortress-like cathedral of Paris, was built about the same time as Chartres, or if anything a little earlier, but it is utterly different in its appearance and in sentiment. Viewed from the great square before its western front it is grand, but oppressive in its grandeur, reminding us only of the grim castles of Philippe-Auguste in whose reign it was built. It is a monument of the strength

of a king who consolidated his throne, but it contains no suggestion of piety or aspiration. If, however, we cross the bridge and view it from the south across the river, it assumes a more gracious aspect; for then its slanting flying-buttresses, as has often been remarked, give it the appearance of "a galley with banks of long, sweeping oars."

The façade of Rheims resembles that of Notre Dame, only it is still more richly ornamented with a lacery of stonework and a multitude of statues. Though it is distasteful to look askance at a building so romantic by reason of its historical associations, the candid spectator will acknowledge that this front is overladen with florid ornament: in the desire to heap beauty on beauty in honour of the king whose coronation was to take place within, the decoration has been so overdone that the beholder is surfeited. While the effect of the whole is thus marred, the ornamentation considered in detail is exquisite, and the sculpture of the portal well deserves to be counted among the four glories of France. Single figures, like that of the Angel of the Annuncia-

tion in the North Porch, are so noble in conception, so perfect in expression, so gracious in their almost Hellenic refinement of workmanship, that the portal of Rheims may well be considered one of the finest galleries of sculpture in the world. But architecturally these are details, and it is almost true to say of Rheims that the parts are greater than the whole.

Beautiful within—for as regards the stained-glass, what has been said of Chartres applies equally well to the others—it must be admitted that externally most of the Gothic cathedrals betray the essential military character of the age in which they were constructed. The exterior of the typical French cathedral differs from that of the English only in having one tower less. Two great square towers on either side of the western portal distinguish both types, but the English cathedral has a further tower over the centre. Central towers, it is true, are found at Rouen Cathedral and at St. Ouen in the same city; but Rouen is the capital of Normandy, and these exceptions help to prove the rule. Indeed, if the ugly iron spire

which adds nothing to its beauty were removed, Rouen Cathedral would look still more like one of its Norman sisters in England.

We are apt to think that French cathedrals are vaster than English, but the difference in size is more apparent than real, and is the result of the French churches being wider than our own in proportion to their length. In mere length, England is easily first, for both Ely and Winchester are longer than the longest French cathedral, that of Amiens which measures 520 feet from west to east. Yet the interior of Amiens seems vaster than Ely or Winchester, and this is due, not so much to its greater width, but to its increased loftiness. It is one of the effects of that high vault poised "like a sail upheld by a continuous wind from below" and apparently strung to, rather than supported by, the delicately proportioned shafts which connect it with the ground. It is not only by its perfection of proportion, but still more by the aspiring lines of its ethereal upward shoot, that Amiens Cathedral is held to be the highest expression of pure Gothic.

Ruskin, in "The Bible of Amiens," admitted

that this cathedral is “in dignity inferior to Chartres, in sublimity to Beauvais, in decorative splendour to Rheims, and in loveliness of figure sculpture to Bourges. It has nothing like the artful pointing and moulding of the arcades of Salisbury, nothing of the might of Durham. And yet,” he concludes, “in all, and more than these ways, outshone or overpowered, the cathedral of Amiens deserves the name given it by M. Viollet le Duc—‘the Parthenon of Gothic Architecture.’” But to appreciate this Parthenon it is imperative that it should be viewed from *within*, for—again to quote Ruskin—“the outside of a French cathedral, except for its sculpture, is always to be thought of as the wrong side of the stuff, in which you find how the threads go that produce the inside or right side pattern.” Here is another point of difference between French and English cathedrals, for in our country far more attention appears to have been paid to the externals of the building. The proof of this is Salisbury Cathedral.

A great cathedral is not built in a day, and consequently nearly all cathedrals are a mix-

ture of styles, but there is this further difference to be noted between the French and the English, that whereas the French, with few exceptions, are only mixtures of Gothic styles, the English are generally mixtures of Gothic and Romanesque. The great church-building movement in England, as we have seen, immediately followed the Norman Conquest; and thus our cathedrals are usually Norman structures which have been remodelled and enlarged by Gothic builders. In France the cathedral-movement began about three generations later, when the Gothic style had already declared itself.

The most complete example of English Gothic is Salisbury, built between 1220 and 1258, and this is the English cathedral which we may most usefully compare with the French. Let us compare it with Amiens, which was being constructed at about the same time (1220-1275), and we shall see how the English idea diverges from the French.

Now immediately we look at Salisbury its soaring spire gives us an impression of great height, and a suggestion of aspiration is conveyed to us from *without* the cathedral. True,

the spire itself is fourteenth-century work, but it was all part of the original plan, and the whole building prepares us for its presence. Salisbury Cathedral, said the late Sir Walter Armstrong, has "happier external proportions than any other Gothic cathedral either in England or abroad. Nowhere else do we find the same gradual development of beautiful forms from the ground to the apex of the spire." Now let us turn to Amiens: its central spire appears insignificant, yet its actual apex is just about as far from the ground as that of Salisbury. The north and south towers at Amiens are 200 feet high, yet they hardly rise above the level of the roof. There you have the difference. The spire of Salisbury, 424 feet high, looks still higher because it rises from a comparatively low roof. The vaulting at Salisbury is 84 feet from the ground—which seems high enough when you are inside the cathedral—but the vaulting at Amiens reaches to a height of 140 feet. You cannot have it both ways—as the men of Beauvais discovered—and in cathedral-building you must make up your mind from the beginning whether you will ex-

press man's perpetual striving to reach the stars by the exterior or by the interior.

Nobody would dare to say that the interior of Salisbury is insignificant, but its difference from Amiens is marked as soon as we enter. Instead of finding a great circular rose-window in the western wall, we have at Salisbury lancet-headed windows with little tracery; as we go up the nave at Salisbury we find double transepts with deep projection, whereas at Amiens, owing to the greater breadth of the nave and aisles, the transepts are unimportant with a very slight projection. At Salisbury the proportion of length to breadth is about six to one; at Amiens it is three to one. Therefore while at Amiens the ground plan of the Latin Cross is almost lost sight of, at Salisbury it is doubly emphasised.

At Amiens everything is sacrificed to one aim, to make the roof soar, lightly and gracefully, high above the spectator. The effect of distance which the French architect sought to obtain by height, the English architect was more disposed to obtain by *length*. Viewed from within, Salisbury from end to end seems

longer than Amiens, yet it is actually shorter. The length of Amiens, as stated, is 520 feet; that of Salisbury is 450. We must conclude that the narrowing of nave and aisles was a device deliberately adopted in England to enhance the effect of distance in the length. It is not peculiar to Salisbury; some English plans show proportions of length to breadth as great as seven to one, and though these long, narrow naves must have been ill-adapted to enable the congregation to see what was taking place at the altar, this insistence on length is a governing principle in the design of English cathedrals.

There is little of the "fairy-palace" in the interior of Salisbury; indeed, generally speaking, we may claim that English cathedrals are graver and more severe within than the French, but they are not for this the less impressive in another way. Fergusson, who wrote on English interiors with enthusiasm, maintained that "in pictorial effect they surpass everything erected on the Continent, unless with greatly increased dimensions of height or width," and he attributed this entirely to the principle of

narrowing the width to enhance the distance of the length, “a discovery which has added more to the sublimity of effect which characterises most of our cathedrals than any other principle introduced during the Middle Ages.” This peculiarity is certainly a fit subject for meditation, and one is tempted to fancy that just as the French tendency to turn all eyes upwards is an indication of the spirit of romance and passion for *la glorie* which characterises the race, so the disposition of our cathedral-builders to make us look steadily ahead on the level of the ground is an unconscious manifestation of the practical common-sense which is usually held to be a British attribute.

Some similar thoughts are aroused when we study the later Perpendicular architecture, and it must be emphasised that this vertical style did not exist outside England, except in imitations. Some writers on architecture are disposed to question whether this is genuine Gothic, because a Perpendicular edifice, they say, does not make “the impression of an organic unity”—like a great tree spreading out its branches—which is the effect of genuine Gothic. The rec-

tangular sections of "Perpendicular," it is argued, suggest a return to the architraval system; but these arguments seem of little account when we are in the presence of so perfect an example of the style as the Chapel of King's College, Cambridge. No interior in England is more eloquent of aspiration than this lovely chapel whose graceful shafts, the embodiment of rectitude, soar high aloft to melt in the miraculous stonework of its fanvaulting. No one could deny the title of Gothic—and all it signifies—to

"That branching roof
Self-poised, and scooped into a thousand cells,
Where light and shade repose, where music dwells
Lingering—and wandering on as loth to die."

No attempt can here be made to follow in all its windings the intricate course of Gothic architecture. Only a few of many notable buildings have been selected in the endeavour to show the spirit by which they are animated. It is unfair to suggest, as has been done, that "cathedral building monopolised the attention of the architects in France," for throughout

that country smaller churches can be found—like that at Caudebec with its exquisite spire of lacework in stone—which are perfect models of Gothic beauty; but it is true that the beautiful parish churches scattered throughout the British Isles are still more numerous and will be found, on examination, to be no less eloquent of the aspiring Gothic spirit than the mightier edifices which have been chosen for illustration.

Neither must we regard Gothic architecture as the sole prerogative of England and France, for though in these countries it reached its highest and purest expression, it affected all Western Europe. It gave rise to many of the most wondrous buildings still to be found in Italy, though here it was never more than a foreign, imported style grafted on older forms. Rarely does Italian Gothic display that aviating tendency which we have found in France and England, and though use is made of the pointed arch and the ribbed vault they appear in Italy to be varieties of decoration rather than essentials of structure.

Milan Cathedral (1385-1418) is the most famous, and, perhaps, the most expressive ex-

ample of the Gothic spirit in Italy. The forest of stone pinnacles on its roof indubitably "aspire"; but compared with the grandeur of the Northern cathedrals there is something trivial in its elaborate decoration, and the wonder of its stone lace-work is a miracle of craftsmanship rather than an expression of the spirit we revere as Art. In Italy, again, stained-glass does not play anything like so important a part as it does in France, or even England. The colour of the Italian cathedrals is on the outside, not within. It is the use of alternate bands of coloured marbles on the façades which is the most striking characteristic of the cathedrals of Florence, Siena and Orvieto. In the last the window-openings are small and filled with slabs of rich translucent alabaster, while the characteristic, deeply recessed, triple porch, below the three gables, is enriched with gorgeous mosaics. These are the features of Italy's ecclesiastical Gothic, brilliant colour without, produced by marbles and mosaics, and comparative severity within. In the Duomo at Florence the inside walls are bare and colourless, though outside the façade is gay with its red, white and black

marbles and its mosaics glittering in the sun.

Like every other style of architecture the Gothic was not limited to ecclesiastical buildings but extended to palaces and domestic buildings of all kinds; yet since its spirit, as we have seen, was that of aspiration, it properly found fuller and purer expression when associated with religion than when asked to serve worldly power and wealth.

Venice, to the perennial delight of all who visit that unique city, developed a distinctive style of her own in which Byzantine richness was blended with Gothic grace; but if we classify architecture by the expression of the whole and not by the execution of the parts, then it becomes questionable whether we can rightly call "Venetian-Gothic" Gothic. Dozens of photographers and hundreds of painters have made all the world familiar with the façade of the Doge's Palace with its double storey of arcades and traceried arches. To Ruskin it was "a model of all perfection," so we must not treat it lightly. The great art-critic was enraptured by its chaste and restrained use of colour. "The sculpture and mouldings are all

white," he wrote; "but the wall surface is chequered with marble blocks of pale rose, the chequers being in no wise harmonised, or fitted to the forms of the windows; but looking as if the surface had been completed first and the windows cut out of it. . . . It would be impossible, I believe, to invent a more magnificent arrangement of all that is in building most dignified and fair." Agreed: it is perfection as the stately official residence of the Chief Magistrate whom a rich and art-loving city delights to honour; but it is not true Gothic, it contains no hint of aspiration, no suggestion of energy. There may, there must, be imprisoned energy in its arches, but the totality of the structure—in which the horizontal lines are emphasised—takes us back to the static architecture of the East, not to the dynamic architecture of the West.

It is the same throughout Italy, these so-called "Gothic" palaces belong to another era. Not only is it impossible to relate them to Amiens and Chartres, to York and Canterbury, we cannot relate them to the Belfry of Bruges or to the Hôtel de Ville of Brussels (1402-

1454), each in its own way a beautiful example of Gothic aspiration, each a joyous expression of a social civic spirit.

Traced to its source a great deal of architecture is rooted in civic pride; but there is a self-respecting pride which offends not, and a selfish pride which becomes oppressive. There is no prouder city in Europe than Genoa, for centuries it has been known as "Genoa the Superb"; and superb it is, using marble as freely as other cities use matchboard. Its *Via Garibaldi*, that long parallel of splendid palaces linked together by a narrow paved way, is the most impressive street in Europe, wonderful and awe-inspiring. But one does not love Genoa. It will not allow itself to be loved. Its palaces stand aloof in their haughty pride, and in the end, while we still admire, we fear them. They are not *social*; they express, not the pride of the many, but the privilege of the few.

How different is the pride that is manifested in the Grande Place at Brussels! This town-hall and these burghers' houses do not frown on us; they do not stand aloof, they are friendly

and welcoming. It is not in joints and angles or arches or beams that we can discover the difference between the Gothic of the Flemish cities and the palaces of Venice and Genoa; it is in the temper of the respective communities and in the spirit of the times.

The souls of cities and nations are reflected in their architecture. The Gothic buildings of Northern Europe are social structures expressing the utmost liberty compatible with a respect for order: they are the counterpart in stone of the free institutions which arose in the same communities. The heavy splendour of Italian pseudo-Gothic is the mailed fist in a velvet glove: it is an expression of feudal tyranny and individual arrogance.

"At the hour when Northern France was lifting up, amid the tremendous vibration of the bells, sonorous poems of stone and glass that hover and sway over the cities, Italy was defining herself in the violent, straight-lined palaces by the quality which, much later, will define her Renaissance. Already, here in the Middle Ages, she was affirming the rights of the individual." So writes the learned French historian,

M. Elie Faure, and with his eloquent words we may well close this chapter. Whatever their beauty—and their intrinsic loveliness is not denied—Venetian palaces have nothing in common with the age of aspiration.

Chapter VII

The Age of Elegance

NEITHER the individual nor society can remain perpetually at a high state of tension: sooner or later relaxation is inevitable. The Gothic movement in architecture was too strenuous to last indefinitely, and its restless spirit of energetic expansion was eventually lulled to rest by a tide of reaction flowing, as we might expect, from the South, from the land where it is proverbially "sweet to do nothing."

The Italians had never really liked the architecture of Northern energy, to them it appeared literally "Gothic," *i. e.* barbarous, and though they accepted it for a time as a foreign innovation which had points of usefulness, besides being fashionable abroad, they never thought of it as their own, but still looked up to Roman architecture as the type of their national ideal. In Italy the popular cry of the reformers is always, "Back to the Lictors."

There is no period in European history of which more fuss and mystery have been made than that which witnessed the revival of classical learning and ideals, known as the Renaissance. It was the fall of the Roman Empire which turned minds back to Rome. After the Turks had captured Constantinople, Italy was swept by a flood of refugees, a crowd of Greek artists and Greek scholars who, like most refugees, proceeded to earn a living by teaching their own language and their own ideals to the new communities among which they settled. They repaid the hospitality shown them by spreading culture. A revived interest in Greek literature, and Greek art naturally led to a revived interest in Ancient Rome, the heir of Athens, and pilgrims no longer went to the "eternal city" only to kiss the Pope's toe, but also to worship the ruins of paganism. Among these pilgrims was a young Florentine named Brunelleschi, the man who more than any other was the progenitor of Renaissance architecture.

Florence had already had a very famous architect, Arnolfo del Cambio. "No Italian architect," wrote John Addington Symonds,

“has enjoyed the proud privilege of stamping his own individuality more strongly on his native city than Arnolfo. When we take our stand upon the hill of Samminiato, the Florence at our feet owes her physiognomy in a great measure to this man. The tall tower of the Palazzo Vecchio, the bulk of the Duomò, and the long oblong mass of S. Croce, are all his. Giotto’s campanile, Brunelleschi’s cupola on the dome, and the church of Orsammichele, though not designed by him, are all placed where he had planned.”

Arnolfo had planned a huge dome—to be carried on an octagon, 143 feet in diameter—but he died before it could be constructed, and after his death the cathedral remained unfinished for more than a hundred years, because no architect was equal to executing what Arnolfo had planned. All sorts of fantastic schemes were suggested to the authorities, but till Brunelleschi returned to Florence, after having made a profound study of Roman methods of construction, no architect was bold enough to undertake to construct the dome without internal supports. To Brunelleschi,

then, was entrusted the building of the dome, and he solved the problem which had baffled all his predecessors by erecting two slightly pointed cupolas, one inside the other, supported by eight vast ogival arches. Thus the great dome—itsself a classical feature—was held in its place by Gothic principles of construction, and at its birth Renaissance architecture showed its willingness to use Gothic methods, when no others would serve, but its desire to hide the true structural form beneath a decorative form derived from Greek and Roman architecture.

With Brunelleschi we return to an age when deceit is thought pardonable for the sake of elegance, though his own structures are not so guilty in this respect as those of his successors. The classical features at first are gently, almost tentatively introduced, as in one of Brunelleschi's earliest and most beautiful buildings, the Foundling's Hospital (*Spedale degli Innocenti*) at Florence. The graceful arches of the arcade are supported on slim columns with Corinthian capitals, while the cornices and windows above are semi-classical in character.

Very often Renaissance architecture consists of putting a classical face on a Gothic framework, and now and again the framework breaks through as in the high arch which cuts the classic architrave of the Capella del Pazzi in S. Croce. For this chapel Brunelleschi took as his model the old Temple of Concord on the Capitol at Rome; but its construction is not really Roman, and this phenomenon of an arch piercing the horizontal which ties together two classic columns becomes a novel and distinctive feature of Renaissance architecture.

The coating over of Christianity with paganism grew apace after Brunelleschi in the hands of Alberti (1404-1473), a great Latin scholar who introduced Latinity into his buildings. The classical taste of the time demanded that church fronts should be made to look as much like Greek temples as possible, and Alberti did his best; witness his St. Maria Novella in Florence with its classical pediment and pilasters. Fronts like this were mere masks, external casings which had no structural connection with the building behind, and though they may appear "handsome" and "elegant" we

soon tire of them because they are insincere. Similarly within, the pilasters, architraves and other classical features introduced by Alberti, were only a series of surface deceits.

Far greater things were accomplished when the Renaissance architects, instead of building sham churches, turned their attention to the real business of providing impregnable homes for their patrons. What a church like San Lorenzo stands for no man can say, but every man can understand the meaning of the huge fortress-palace which Brunelleschi designed for the powerful noble Luca Pitti. Only the lower portion of the Pitti Palace was completed in his life-time, but this is the most striking feature of the whole colossal pile, and it set a fashion that was extensively followed in Florence, Rome and elsewhere. The striking feature of these palaces, which give the streets of Florence an aspect of monumental magnificence, is the use of immense "Cyclopean" blocks of masonry, each projecting boldly from the line where two touch, and each roughly hewn. The rude appearance, given by the deep channelling which

marks the joints, has caused this style of stonework to be known as "rusticated." In some cases, as in the Palazzo Strozzi, this "rustification" covers the whole façade, but more often it is confined to the lower courses, and wherever it is used it gives the buildings an impressive aspect of solidity and strength. At the same time the deep channelling permits a play of light and shade that gives a variety of interest to the whole.

Well has it been said that these Florentine palaces are "pages of history which he who passes may read," for the heavy walls and narrow windows are eloquent of the turbulent internecine strife and continual street-fighting which for centuries characterised civic life in Italy. Palaces by courtesy they are fortresses in fact, and if we accept Sir Walter Armstrong's definition of beauty as "Fitness Expressed"—and it is a good one for working purposes in architecture—then we cannot deny the title of beauty to palaces like the Riccardi at Florence and the Doria at Rome, which so fitly express the purpose of their being and the

temper of the times in which they were built. They are survivals of the age of strength in an age that aped elegance.

The idea of strength was never very far removed from the Papacy in those days when the Pope was more of a prince than a pontiff. The high walls of the Palace of the Popes at Avignon are not an expression of religious aspiration, but of a determination to prevent an infuriated populace from scaling the castle. It is an amazing revelation of papal disregard for what was once held to be the basic principle of a Roman church, that in 1506 a Pope and College of Cardinals should have thought it quite satisfactory that St. Peter's, Rome, the centre of Latin Christendom, should be built on the plan of a Greek Cross. The ambitious Julius II was more concerned with the bigness than the shape of his church, and, since the dimensions were gratifyingly large, no objections were raised when Bramante began to set it up on the lines of a cross with four equal arms. Now that the Turks were in possession of Constantinople, there was only an academic and artistic interest in Byzantium; it was no

longer a rival for spiritual and temporal power.

Bramante died in 1514, and when the painter Raphael was appointed architect of St. Peter's, he—with his usual good taste for what was fitting and proper—changed the design from a Greek to a Latin Cross; but he died too young to put his plan into operation, and, like so many of the architects who succeeded Bramante, multiplied plans and discussions instead of adding to the unfinished building. When in 1546 the building was at last handed over to Michael Angelo, he reverted to Bramante's Greek Cross, but added a portico to the front and the mighty dome over the centre, 140 feet in diameter and rising to a height of 400 feet. From an artistic point of view Michael Angelo was absolutely right, and had St. Peter's been left in accordance with his designs, its exterior would have been far more imposing than it is to-day.

But in the seventeenth century the impropriety of a Greek Cross as the foundation for the chief temple of Rome was perceived, and Pope Paul V allowed the architect Maderna to add two bays to the nave, thus transforming

the ground plan into that of a Latin Cross. This was bad enough, architecturally, for it destroyed the proportions of the interior, but worse was to follow, for Maderna then erected the existing senseless façade which completely cuts off the view of the dome from the front. Therefore no close view of Michael Angelo's great masterwork in architecture is possible to-day, and it is only when we see it from a distance, dwarfing all the other surrounding buildings, that we get some glimmering of the splendour of his achievement. Credit, by the way, must not be given to Maderna for the fine colonnade which encircles the Piazza, for this was a still later addition by Bernini (1629-1667).

The Popes wanted bigness and they got it; St. Peter's, nearly 600 feet in length, is still the largest church in existence, and though there is no cunning device, no multiplicity of parts to increase the *apparent* size, as we might have expected to find in a Gothic cathedral, the mere vastness of the interior makes its own impression. That is the good quality of the interior; it is honest. It does not pretend to be big, it *is*

big; so big that the scale is given by the human insects who crawl about it, and though it does not exactly convey a sense of holiness, we are awed as a man who thought to enter a house and discovered he had penetrated into the heart of a great and wonderful city. In St. Peter's we are not conscious of nave or aisle; we seem to be in streets whose lampposts are massive marble piers.

In France, where the national Gothic traditions were strong, the fashions of the Renaissance were slowly and reluctantly accepted. The mixing of the two traditions is seen in the castles of the Loire and the great Palace of Fontainebleau, but the French builders showed their unfailing grace in a picturesqueness of composition and outline that we rarely find in Italy. The sky-line of French Renaissance architecture is much more interesting than that of the Italian, and this is largely due to the steep-pitched roof, with its development of dormers and high chimneys, which was—and, for that matter, still is—a feature of French architecture. The steep-pitched roofs and steepled towers which make the castles of the

Loire so picturesque are only another manifestation of that romantic delight in seeing open-work against the sky which during the great Gothic period found expression in pierced parapets, pinnacles and crockets.

The Louvre, which without as well as within is the chief glory of Paris, is an exhibition of the progress of French Renaissance from François I to Napoleon III; but though this, the most extensive palace in Europe, took more than three centuries to complete, no one can say that it is lacking either in unity or elegance. An interesting example of the Italian influence which came into France with the Medicis may be noted at the Luxembourg (1615), for its "rusticated" façade is an obvious imitation of the garden-front of the Pitti Palace in Florence.

Of a still more famous French palace, that of Versailles, it is difficult to speak without bitterness. Built at enormous expense for Louis XIV by J. H. Mansard (1645-1708), this vast pile is extraordinarily dull, and fitly represents an age when elegance had degenerated into ostentatious pomp and purse-proud pretension.

The appalling vulgarity of the interior, with its "lashings" of gilt and innumerable mirrors to minister to human vanity, is quite enough to account for, and justify, the French Revolution.

In England the path to Renaissance architecture had already been smoothed by the Tudors. Amid all the fantastic terminology coined by professional architects for secreting from the common herd the mysteries of their craft, it would be difficult to find a more misleading phrase than "Tudor-Gothic": we might as well speak of the Louvre as an example of "Navarre-Gothic."

Tudor buildings are delightful to look at, but they are not in the least Gothic; they are much too comfortable and settled to "aspire." What the Tudors did with the arch was to squash it into four squares with the same firm hand that they used to suppress rebellion. Tudor architecture does not speak to us of energy, restlessness and aspiration; it stands for "a strong government," "settled convictions," "a stake-in-the-country" and similar good old English catchwords which are revived

every time there is a political election. It does not shout these things at us, it says them gently and quietly, with perfect good taste and with unshakable conviction.

The transition from pure Gothic to Tudor architecture was heralded by the Perpendicular style. Why England should abhor a curve, it is difficult to say; but the history of her architecture shows a continual tendency to oust the curve in favour of straight lines at every possible opportunity. Just as in Norman and Early English times she had done away with curves at the east end of her cathedrals and substituted a quadrangular apse, so now she replaced arched windows by square windows. The square is as persistent a feature of Tudor as the arch is of Gothic. This change was not brought about by a desire to reduce the window space—

“Hardwicke Hall,
More glass than wall,”

proves the contrary; and another beautiful early Tudor mansion, Wollaton Hall, Nottinghamshire, is as notable for its large, square,

twelve-panelled windows as for the "strap-ornament" of its parapet and the tiers of pilasters on its graceful tower.

In Elizabeth's time the Tudor matured and softened, and an interesting feature of her age is the number of great mansions whose ground plan has the shape of the letter E—doubtless in honour of the Queen. In earlier times the favourite plan of the mediæval mansion had been a series of two or three quadrangles or courts, one behind the other, and with the main entrance in the face of the first. Haddon Hall is a standard specimen given in every text-book, but a very much earlier—and, what is to the point, a much more accessible—example of typical mediæval building is provided by Queens' College, Cambridge.

Montacute House, near Yeovil, is a famous specimen of the Elizabethan mansion and the E-shaped plan had two great advantages: by taking away the sides of two squares it permitted the grounds to be seen from windows on both sides of the interior, and the back of the E was available for one great gallery, as at Montacute House, where it occupies the whole

of the first floor of this arm, 170 feet long and 20 feet wide.

The quaintness which is so endearing a characteristic of Elizabethan houses, especially the smaller ones, is in no small measure due to their disregard of any one particular style. They are the most curious and puzzling medleys of the mediæval, the Gothic and the classical. It was an age of merchant-adventurers, and the architects, like the seamen, took their good where they found it. During the reign of James I forms of classical origin were more freely used, but they were still used, even in buildings of the same date, with an extraordinary diversity both in the amount and the character of the classicism.

It is said that the Earl of Suffolk spent £500 in bringing from Italy a model for his mansion of Audley End, in Essex. Some fifty years after it had been completed an Italian gentleman came to see it, in 1669, and apparently he failed to recognise it as Italian or even Renaissance in style. "The architecture of the palace," he wrote, "is not regular, but inclined to Gothic, mixed with a little of the Doric and

Ionic.” That is perhaps the most intelligible description that has yet been given of the early Jacobean style.

In an age when individuality was rife, it needed a very strong man to stamp the architecture of his time with his own personality. The first Englishman equal to the task was Inigo Jones (1572-1652), and with him the era of English Renaissance properly begins. Jones had studied in Italy and was much influenced by Palladio, who had popularised a simple but grand effect obtained by the use of superimposed pilasters or engaged columns extending down the length of a façade and dividing it vertically. Unfortunately for English architecture the Civil War destroyed Jones’ prospects, and of the great palace he planned for Charles I at Whitehall, only the Banqueting Hall was erected. The ornamentation of this façade with pilasters shows the influence of Palladio, while the two “rusticated” stories take us back to the Florentine palaces. No critic can justly urge that it was inappropriate to build a fortress round Charles I—the difficulty was to build one strong enough—but

while Inigo Jones's reminiscence of the fortress-palace was appropriate to the purpose of his building and the temper of his time, this "rustication" appears foolish when used in later and more peaceful days for no more desperate purpose than to enable clubmen to read newspapers in safety.

What Inigo Jones had attempted, Sir Christopher Wren achieved, and no man has done more to increase the beauty of England. To him, or to his influence, we may safely attribute something like twenty-five per cent. of the most beautiful buildings in the country. London, Cambridge and Oxford are, to a great extent, monuments of his genius; to him we owe the garden front of Hampton Court, the noble dignity of Greenwich Hospital—which Inigo Jones had begun—the exquisite Neville's Court and Library of Trinity College, Cambridge, the Sheldonian Theatre, Oxford, the most beautiful of our city churches, and St. Paul's Cathedral.

Wren had perfect taste, and when we are disposed to criticise his work we find on examination that he had to build, not always as he

would, but as he could. He is not to be judged by St. Paul's, though that assuredly is no mean achievement, and it is certainly better than St. Peter's in that the dome *can* be seen from the front. Had Wren had his way we should have been able to see his cathedral still better, for he planned not only to surround it by a ring of churches, but to connect these with the centre by great avenues and spacious squares up which vistas of the cathedral would have been obtained. Wren was not only an architect, he was a town-planner, but his grand ideas were continually hampered by various considerations, and invariably by lack of funds. The last is the reason, probably, why the dome of St. Paul's is only wood-work covered with lead. Wren, who built up the brick cone inside it to carry the heavy stone lantern, was surely skilled enough to have designed and set up a dome of true masonry had funds permitted. More questionable is the upper storey which is a mere screen having nothing behind it, but this adds so greatly to the dignity of the exterior that we are inclined to forgive its structural falsity.

Remembering that he was always being pushed to put up large buildings quickly at a small cost, we should not concentrate on a flaw here and there, but consider the magnitude of his whole achievement. In London alone he put up something like fifty churches, and, though some are more beautiful than others, each has points of interest. We can hardly imagine what London would be like without those lovely spires which Wren was the first to introduce into English Renaissance. For this alone we should go down on our knees to him, for what would the Strand be without his two churches, what would Cheapside be without the gracious steeple of St. Mary-le-Bow? The man-in-the-street, whose heart is lifted to higher and happier thoughts by the sight of Wren's gently ascending spires, will be little inclined to side with the pedant who condemns them as an "anomaly," holding the steeple to "belong more properly to Gothic architecture." Common sense tells us that it is no more wrong to put a steeple than a flagstaff on the top of a tower. From an artistic standpoint it all depends on how it is done; and Wren did it ex-

cellently. Nothing could exceed the delicacy with which he makes the transition from the square to the round and leads our eye, past diminishing stories, from the tower to the point. Further, there is authority for holding that the steeple on the tower is not merely optional, but obligatory. "In principle," wrote Viollet-le-Duc, "every belfry (clocher) of the Middle Ages was built to receive a stone or wooden spire; it was the obligatory termination to religious towers. At first they are only slightly elevated, but soon they become more important, taking the form of pyramids on octagonal bases, and finally becoming sharply pointed."

Wren, therefore, was amply justified in his practice, and we ought to be grateful to him for uniting so beautifully the most characteristic feature of English buildings, the square tower, with the universal emblem of humanity's upward thoughts. In the hands of Sir Christopher Wren elegance not only reached a point of exquisite refinement, but made itself—like the prose of Addison—a vehicle for the expression of noble sentiments; and if Wren's spires are dearer to the national heart than many build-

ings which exceed them in originality and beauty, it is because no other architecture in the world is so closely related to the temper of the British race, a race whose actions—like Wren's spires—if squarely grounded on a practical base, are yet not altogether unmindful of higher ideals.

Chapter VIII

The Age of Memory

AFTER we have considered the great monuments of architecture which our forefathers have bequeathed us, castles and cathedrals, palaces and historic mansions, there comes a time when we are tempted to wonder what we in our turn are producing in the way of architecture for the delight and edification of posterity.

Authorities on the subject tell us that during the Georges "there was comparatively little noteworthy architecture produced," yet when we look at Georgian buildings most of us are disposed to maintain that these have far more dignity and are far pleasanter to look at than Victorian dwellings and most of the houses which have been erected in our own times. It is true there is not much originality in Georgian architecture; it was during the Hanoverian dynasty that the process of boxing-up the

British nation began; but the boxes were spacious and they were embellished with gracious memories of brighter days. It was an age of memory, perhaps, but elegance survived in the ordering and proportions of windows and doors; now and again a notable thing was achieved. The dominant influence was that of Renaissance architecture, and the success of the structures depended a good deal upon the appropriateness with which the architects employed their memories. When George Dance, senior, tried to make the Mansion House look like a Greek temple, the incongruity of the design to the purpose of the building defeated his endeavour to express the dignity and pride of the City of London; but when his son, the younger Dance, harked back to the Florentine fortress-palaces for his Newgate Prison, the "Old Bailey," he produced a vigorous and significant building, which expressed its purpose infinitely better than the structure which has now taken its place.

Not conspicuously happy in their public buildings, the Georgians showed far better taste in their domestic architecture; and we must

always be grateful to them for leaving us so many streets down which it is a pleasure to walk. The work of the Brothers Adam, particularly in the district behind the Strand associated by name with their fraternal co-operation, namely, the Adelphi, may be regarded perhaps as the swan-song of the Age of Elegance before the coming of the Age of Steel.

The most interesting thing about Victorian architecture was the coming into fashion again of the Gothic style, a revival due partly to the eloquence of Ruskin, and partly perhaps to the indirect influence of what was known as "the Oxford Movement." Unfortunately it was a revival of the letter rather than of the spirit of Gothic architecture, and Victorian Gothic was peculiarly ecclesiastical in character. A curious example of this tendency is Beckett's Bank, near City Square, Leeds, which both within and without looks far more like a church than a counting-house; on entering it we expect to hear the cashiers intone and are a little shocked that the nave should be bisected by a counter.

The absurdities of Victorian Gothic soon produced a reaction in favour of the Renais-

sance style, and that style—mainly seen through French or American spectacles—is perhaps the most dominant among the welter of styles that are being used to-day.

It is easy to condemn modern architecture, for obviously one can begin by saying there is no modern style in architecture, only memories of many older styles. The new façade of the British Museum extension, the King Edward VII Galleries, facing north, is a pious memory of Greece; the Roman Catholic Cathedral at Westminster, with its campanile, is a memory of Byzantine work; Bourneville Church, also with a campanile, is a memory of Romanesque; Peter Robinson's new building in Oxford Street is a cleverly adapted memory of Renaissance architecture; the new building of the Metropolitan Water Board in Rosebery Avenue is an ingenious memory of Georgian elegance.

So one might go on indefinitely, citing not only general reminiscences of past styles, but also reminiscences of particular buildings. All ages and all climes have been ransacked by our modern architects, but notwithstanding their

skill, ingenuity and taste, they cannot disguise the fact that even the best of them are living on the past. No doubt this, to some extent, is true of all the arts, but one would like to see in architecture some distinctive stylistic advance analogous to that made in the reign of Elizabeth and James I by a new jumble of older elements. But to-day our architects are so scholarly and well-informed that they are extremely careful not to mix their styles, and so we have not even the eclectic art that might have a flavour of novelty.

The only genuine new thing in architecture is the American "skyscraper," which was brilliantly described a good many years ago as "a steel bridge standing on end, with passenger cars running up and down it." Steel construction, we are often told, has revolutionised the craft of building, and till the fact of it is overtly acknowledged and expressed in the pattern the designer evolves with its aid, we shall never have a real new style of architecture. The "skyscraper" is an acknowledgment, but it is only a primitive expression of a new cultural style.

The greatest artistic heresy of modern building is the attempt to disguise the steel backbone of a fabric, an attempt which frequently takes the form of pretending to use massive columns to support nothing at all; the fact that these columns are not the real supporters of the weight is so obvious, that the building on which they are stuck looks ludicrous—though he may not quite know why—to the least initiated layman.

To be architecture, and not mere building, an edifice must do two things; it must confess the secret of its structure, and it must express at least some vague idea of the purpose for which it is erected. No added ornament can make an inexpressive or a wrongly expressive building beautiful. A realisation of this latter truth among architects is the foundation of the considerable improvement shown by the architecture of the last twenty years. Some of the new banks do look like strongholds for bullion—as they should do—some churches do look like centres for religious worship, and many houses in town and country look like fitting

homes for the citizens of varying prosperity destined to reside in them.

In ordinary domestic architecture the steel problem does not arise, for what the architect has chiefly to consider are two problems centuries old, namely, how to keep cottages and houses warm in northern lands, and how to keep them cool and airy in southern climes. Climate is the all-important factor in deciding the character of a dwelling-house, and the differences which exist between the national architecture of Holland and Spain or England and Italy have not been brought about by somebody trying to invent a new style, but by a long process of experimenting to find what best suited the needs of the inhabitants of a certain country. Rich men may build freaks, but poor people seek the most suitable shelter they can obtain. An English cottage is an English cottage whether it be in Yorkshire, Surrey or Cornwall, and its designer is the English climate. A Swiss chalet is suitable for Switzerland, an Indian bungalow is suitable for India, but the agricultural population of rural Eng-

land has too much sense to want to spend an English winter in either of them. If we build to meet a particular need, and build truly and well, an appropriate beauty will make itself manifest, as it does in the humble dwellings of the various nations.

Admitting, therefore, the problem presented by steel construction, it is a problem that only concerns great buildings and great cities, and architecture has much to do with brick and stone in cities as well as in country districts. There is, however, no denying the fact that large commercial buildings nowadays are becoming nothing more than gigantic frameworks of iron and steel, with a clothing of masonry. It is frequently stated that the revolution brought about by the introduction of iron into architecture is comparable to the great change when the Gothic style replaced the Romanesque; but this comparison is really inapt, the change is much more like that produced when the Romans discovered the use of concrete. Steel also has taught us an "easy way of doing that whose difficulty was its chief honour," and

steel buildings, like Roman buildings, are on the way to be, "splendidly untruthful."

The problem confronting the architect who uses steel is that the metal affords a support, but not a surface; steel gives him a skeleton, but it does not furnish the flesh. In the earlier stone constructions the difficulty was to provide the windows. With steel there is no difficulty. The metal provides the hole, so to speak, but it does not provide the wall. Just as ribbed-vaulting—which was the kernel of Gothic architecture—gave rise to a new style, so it seems possible that when we are better acquainted with the use of steel, and when it has been longer in practice—for it is still in its infancy—some new form of architecture may be evolved which owes its genesis to the use of steel. But if the new form of architecture is to be pleasing it must be something that has been suggested by the new material itself. Steel is only displeasing when it abandons its intrinsic qualities and dissimulates its nature by aping stone.

Nobody can say there is anything displeasing

or inartistic in the frank and candid use of iron in such a building, say, as St. Pancras Station. There is something uplifting in that great arch—something that steel has given us which has not been given us before by any other material. So we may hope that steel, developing itself without taking any other material for its model and adventuring without a guide, will find of its own accord that character of beauty which becomes it.

Already there are certain metal constructions the beauty of which no one can seriously question. An admirable example is the Pont Alexandre III at Paris, for its slender trajectory has a quality of beauty not to be found in the heavier bridges of olden time. If many iron bridges are ugly, that is the fault of the designer, not of the metal. If we compare such modern engineering feats as the Pont Alexandre III at Paris, or the Forth Bridge, or the suspension bridge at Brooklyn with the bridge of mediæval times, we can find many points in favour of the modern structure. Compare the Alexandre III with what London Bridge was

—not what it is to-day, but with the curious bridge you see in old prints, like the Ponte Vecchio at Florence, a bridge that is not a simple causeway but a street carried across a river. A fortress to withstand attack, a fleet of houses elevated on stone canoes, that old bridge, though “picturesque” in itself, at least had the effect of hiding nature. It blocked the horizon, and obscured from sight the majestic flow of the water. When we stood on it we did not know we were on a bridge, we appeared to be in an ordinary street.

With the new bridge, light and elegant in its construction, we see more landscape, we see more water, we see more sky. Where the old bridge painfully crossed the river from stone to stone—waded across heavily, like an elephant—we now, thanks to steel, have a causeway that leaps magnificently from bank to bank at one bound like a gallant horse.

Surely we may admire the effort of science which has diminished the material used and so served well art which ever loves economy; the steel bridge fulfils its function as a causeway

quite as efficiently as, if not more so than, the stone bridge, and it has qualities of its own which, rightly used, make for beauty.

Again, like Rome, it may be that future generations will deem our most interesting and most artistic architecture to be what we consider to be useful engineering, and it is in struggling with difficulties presented by engineering that new beauties of architectural form are most likely to arise. The fault of steel is that it is too docile, it permits everything and orders nothing, and when we have overcome the resistance of a material it has lost the power to instruct us. It was in struggling with the difficulties of their material that the architects and artists of the past learned how to achieve their greatest triumphs. Steel is not found ready for use like stone: man who fashions steel and makes it obedient to his will must take charge of its beauty, and by bending it still further to his fancies he may make steel work out its own salvation. In the United States a new order of building is arising in which the steel framework is covered but not concealed, and when the garment is not a dis-

guise, but follows the structural lines underneath, beauty and grace result.

Steel, we have remarked, provides a skeleton only, and it is for the architect of the future to say to that skeleton, in the words of the Prophet: "Behold, I will cause breath to enter into you, and ye shall live, and I will lay sinews upon you and will bring up flesh upon you, and cover you with skin, and put breath in you, and ye shall live."

A Glossary of Technical Terms

ABACUS. A slab of marble or stone used as the upper member of the capital of a Greek Doric column; or the collection of mouldings which crown the capital of other columns. It is usually square, but in the Corinthian column it is curved and the curving is called the *arch* of the abacus.

ABUTMENT. See **BUTTRESS.**

ACANTHUS. A prickly plant (*bear's breech*) the leaves of which are imitated in the ornamentation of Corinthian capitals.

AISLE (from Latin *ala*, a wing). When a church is divided in its breadth into three parts, the two extreme outward divisions are called *aisles*, and the centre division the *nave*.

APSE, or APSIS. The semi-circular recess at the end of a basilica, where originally the Roman magistrates and afterwards the Christian clergy sat.

ARABESQUE. A style of flowing ornament, based on fruits, flowers, mathematical figures,

script—anything except the forms of men and animals, which were forbidden by the Koran—with which the Arabs adorned the walls, ceilings and floors of their buildings.

ARCADE. A series of arches supported on columns used as an ambulatory; or, a series of recesses with arched ceilings on the exterior of a building.

ARCHITRAVE. Originally the beam which in ancient buildings extended from column to column to support the roof; hence in stone buildings the moulding which rests immediately on the columns; the upper or transverse portion of a doorway. See **ENTABLATURE**.

AMBULATORY. A place designed for walking, as a cloister, or gallery.

ATTIC. The uppermost story of an arch or house.

BARQUE. Ornamental designs of a florid character which show a taste for display rather than for appropriate decoration. See **Rococo**.

BAPTISTERY. A circular building, originally outside the church, in which the rite of baptism was performed.

BASILICAS. The spacious halls, first erected

by the Romans about 200 B. C., used for public business and the administration of justice. The ground plan was usually a rectangle, twice as long as it was wide, with an apse at the far end opposite the entrance. The word is also used to denote the early Christian churches built in imitation of these Roman halls.

BUTMENT. See **BUTTRESS**.

BUTTRESS. A mass of masonry by which the side of a wall or arch is supported and sustained in its place.

CAPITAL. The ornamental head or summit of a column, placed immediately over the shaft.

CARYATIDES. Statues of female figures used as columns to support the entablature (*q.v.*) and other parts of ancient buildings.

CLERESTORY. The upper row of windows in a church, which rises *clear* above the roof of the nave, or the arches which support it.

COLONNADE. A row of columns supporting or surrounding a building and consisting of one or more lines of pillars.

CORNICE. A moulded projection that crowns and finishes the part to which it is affixed.

CRAMP. A piece of iron or other metal, bent at each end, which is inserted into two neighbouring blocks of masonry, etc., to hold them together.

CROCKET. Small hook-like ornaments, usually consisting of a bunch of sculptured foliage, used to decorate spires, pinnacles, etc.

CUSP. A projecting point forming a pendant or horn in the foliation of tracery, panels, etc.; assembled together they form trefoils and quatre-foils.

ENTABLATURE. The portion of a building which is immediately supported by columns, and consisting of three parts: (i) the *Architrave*, or ornamental moulding, which rests on the summit of the capitals, (ii) the *Frieze*, or central space, which is often decorated with sculpture, and (iii) the *Cornice*.

ENTASIS. The swelling outline given to the shaft of a column (*cf.* pp. 78, 79).

FAÇADE. The front or exterior side of a building.

FAN TRACERY. Geometrical carved work which spreads over the surface of a vaulting,

rising from a projecting bracket and diverging like the folds of a fan.

FINIAL. An ornament, often closely resembling a bunch of *crockets*, used as a termination to pinnacles, etc.

FOLIATED. Carved ornamentation, based on the forms of leaves, used to decorate masonry or woodwork.

FRIEZE. The central portion of an *Entablature* (*q.v.*).

LANCET. A tall narrow window ending in an obtuse pointed arch, somewhat resembling a surgeon's lancet.

LANTERN. A small turret, with windows all round it, raised above a dome or roof.

LATTICE. A window or other open space having diagonal cross-bars.

LIGHTS. The openings between the stone mullions of a window.

METOPES. The square spaces between the Triglyphs (*q.v.*) of a Doric frieze, usually decorated with sculpture.

MULLION. The upright stonework between the lights of a window.

NAVE. The middle part of a church, west of the choir, distinct from the aisles.

OGIVE. The arch or moulding of a Gothic vault which passes *diagonally* from one angle to another and forms a cross with other arches. The centre where the ogives cross is termed the *Key*, and this is often cut in the form of a rose; the mouldings or members of the ogives are variously known as *branches*, *nerves* and *reins*, and the arches which separate them are called *double arches*.

ORIEL. A projecting window with front and side lights, usually supported on a bracket.

ORDER OF ARCHITECTURE. The name given to a systematic arrangement of the several members, ornaments and proportions of columns and entablatures. The *Five Orders* are the *Doric*, *Ionic* and *Corinthian* in Greek architecture (see pp. 57-58), and, additionally in Italian architecture, the *Tuscan* and the *Composite*. The *Tuscan* is similar to the *Doric*, only the columns stand on bases and the entablature has no triglyphs. The *Composite* is distinguished by a capital in which the *Ionic*

volute are combined with the lower portion of the Corinthian acanthus capital.

PEDIMENT. The obtuse triangular facing which crowns the portico of a Greek temple and is supported by columns; also used as a decoration over windows, doors, etc., in Renaissance architecture.

PIER. The square support on which the arches of a building (or bridge) rest.

PILASTER. A square column attached to a wall as an ornament and slightly projecting from its face.

PLINTH. The lower projecting base of a column, pedestal or wall.

PYLON. A term derived from the Greek word "pylee" (= an entrance), used particularly to denote Egyptian gateways.

Rococo. Term applied to the debased, florid ornamentation which succeeded the Louis XV style; characterised by an overloaded abundance of detail which has no constructive propriety.

SHAFT. The part of a column between the base and the capital.

STRAP-WORK. Architectural ornamentation consisting of a narrow fillet or band, folded and crossed and occasionally interlaced with another; a favourite form of decoration during the later years of the Renaissance, especially in Flanders and Germany.

TRABEATED. A term used to denote that method of constructing buildings in which floors and roofs are supported by beams (*trabes*) as opposed to vaulted or arched buildings.

TRACERY. The ornamental stonework, developed from the upper part of mullions, which enriches Gothic windows.

TRANSEPT. The two arms of a church which cross the nave and chancel at right angles.

TRANSOM. The cross-bar which divides a window horizontally.

TRIFORIUM. An open gallery or arcade in the wall above the arches of the nave of a cathedral or church.

TRIGLYPH. A set of three parallel grooves or channels which appears at regular intervals in a Doric frieze; this ornament is supposed to be

a representation in stone of the "thrice-cut" ends of wooden beams. See METOPE.

TYMPANUM. A term used to denote (*a*) the triangular space within a Pediment; and (*b*) the space within the Lunette or semicircular moulding used over doors, etc.

VAULT. An arched roof so contrived that the stones which form it sustain each other.

VOLUTE. The spiral scroll which characterises the top of an Ionic capital.

INDEX

A

ALBERTI, 191-192
 Alexandria, 89
 Amiens Cathedral, 172-176
 Arch of Constantine, 104, 118
 Arch of Titus, 103
 Arles, 101, 142
 Assyrian architecture, 62, 64

Audley End, 202
 Avignon, 194

B

Babylonian architecture, 59-61

Barrel-vaulting, 135
 Basilicas, 98, 114-121
 Beauvais Cathedral, 168-169
 Bradford-on-Avon, 145
 Bramante, 195
 Brunelleschi, 188-190
 Brussels, 183
 Byzantine architecture, 120

C

Caen, 143

Cambridge, 12
 Caudebec, 180
 Chartres Cathedral, 163-168
 Cleopatra's Needle, 44
 Colosseum, 101-103
 Corinthian order, 74, 83, 87, 123
 Cretan art, 65-71

D

Decorated style, 161
 Doge's Palace, Venice, 182-183
 Doric order, 73, 76
 Durham Cathedral¹, 147, 162

E

Early English architecture, 161
 Egyptian architecture, 29-60
 Elizabethan architecture, 201
 Ely Cathedral, 147, 168, 172
 English cathedrals, General characteristics of, 177

English churches, Leading feature of, 148

Ionic order, 74
Italian Gothic, 185

F

Ferrara, 111
Florence :
 Duomo, 181, 189
 Pitti Palace, 192, 198
 Riccardi Palace, 193
 Spedale degli Innocenti, 190
 S. Miniato, 140
 Strozzi Palace, 193
Flying buttress, 144, 156
Fontainebleau, 197
French furniture, 24

G

Galla Placida, Tomb of, 126-127
Genoa, 184
Gothic style, Origin of, 151, 155
Greek temples, 77-86
Greenwich Hospital, 204

H

Haddon Hall, 201
Hampton Court, 19, 20, 204
Hardwicke Hall, 200

I

Inigo Jones, 204

J

Jacobean architecture, 203

K

Karnak, 53
King's College, Cambridge, 179

L

Lighthouses, 25, 110
Lombard architecture, 133-134
Louvre, 198
Luxembourg, Paris, 198
Luxor, 49

M

Maison Carrée, Nîmes, 97
Mansard, 198
Memphis, 40
Milan Cathedral, 180
Millennium, The, 132
Mosaics, Use of, 126-131
Mycenæ, 66

N

Newgate Prison, 210
Nîmes, 97, 101, 102, 107
Norman architecture, 143-149

Norwich Cathedral, 148
 Notre Dame, Paris, 111,
 156, 170

O

Obelisks, 44-45
 Orvieto, 181

P

Palace of the Popes,
 Avignon, 193
 Palladio, 203
 Parish churches in Eng-
 land, 150
 Parthenon, 78-81
 Perpendicular style, 161,
 178
 Pisa:
 Duomo, 137
 Leaning Tower, 139
 Pompeii, 89
 Pont-du-Garde, 107
 Prehistoric dwellings, 28-
 30
 Pyramids, 34-40

Q

Queens' College, Cam-
 bridge, 201

R

Ravenna:
 Mausoleum of Galla

Placidia, 109, 126-
 127

Mausoleum of Theo-
 doric, 109

S. Apollinare in Classe,
 118

S. Apollinare Nuovo,
 118

S. Vitale, 122

Renaissance, The, 188

Rheims Cathedral, 170-
 171

Ribbed vaulting, 135-
 136, 156

Romanesque architecture,
 120, 133, 139

Rome:

Baths of Caracalla, 100
 Baths of Diocletian,
 100

Cloaca Maxima, 88

Doria Palace, 193

Pantheon, 90, 94, 96,
 115

S. Giovanni in Late-
 rano, 117

S. Maria Maggiore,
 117

S. Peter's, 115, 195-
 196

S. Pudenziana, 125

Vatican, 101

Rouen Cathedral, 171-
 172

THE POETRY OF ARCHITECTURE

Rusticated work, 193

Trinity College, Cambridge, 204

S

Salisbury Cathedral, 174-176

Tudor architecture, 200

V

Saxon architecture, 144

Venice:

Siena, 181

Doge's Palace, 182-183

Sky-scrappers, 213

Loredan Palace, 129

Sphinx, 50

St. Mark's, 128-131

Stained glass, 159, 166

Verona, 102, 133

St. Ambrogio, Milan, 135

Versailles, 198

St. Paul's, London, 205

St. Trophime, Arles, 142

W

T

Thebes, 45, 52

Wakefield, 12

Tower of London, 111

Westminster Abbey, 148

Tracery, 160

Whitehall, 203

Trajan's Column, 23

Wren, Sir Christopher, 204-208

Date Due

OCT 18 '49	OCT 3 '57		
OCT 28 '49			
NOV 16 '49			
MAY 10 '50	OCT 20 '59		
OCT 6 - '50	NOV 5 '59		
APR 4 - '51			
MAY 26 '51			
OCT 10 '51	MAR 8 - '62		
OCT 23 '51	MAY 4 '66		
NOV 2 '51	MAY 8 '67		
NOV 14 '51	NOV 7 '67		
MAR 31 '52	AP 27 '72		
DEC 5 '54			
DEC 15			
JAN 19 '55			
JAN 21 '55			
MAR 29 '55			
®			



3 1927 00117691 3

2

720.1

R93

Rutter, Frank.

The poetry of archi-
tecture.

DATE

ISSUED TO

720.1

R93

